

ELECTRONIC PARKING METER**BACKGROUND OF THE INVENTION****1. Field of the Invention**

The invention relates to an electronic parking meter,
5 more particularly to an electronic parking meter that
is adapted to be installed inside a car, and that is
adapted for use with a prepaid parking card.

2. Description of the Related Art

Conventional coin-operated parking meters are
10 installed along roads and streets to regulate the
parking of motor vehicles. A car driver who wishes to
leave his/her car in a parking space for a certain period
of time has to insert a certain number of coins into
the parking meter according to the stipulated parking
15 charge. A parking meter attendant will patrol the
parking area to inspect the parking meters from time
to time, and will issue a citation if a car is found
to be parked in a space where the parking meter has run
out of money. Some drawbacks associated with the
20 conventional coin-operated parking meter are as
follows:

1. Since the conventional coin-operated parking meter
is erected along roads or streets, it is subjected
to the forces of nature, such as rain. Besides, it
25 will attract the attention of thieves who will try
to steal the coins therein, which not only increases
repair and maintenance costs but also brings

inconvenience to car drivers and parking meter attendants.

2. Since the conventional parking meter is coin-operated, if the car driver does not have any coin
5 or enough coins with him/her, he/she has to find change. Otherwise, the car driver will receive a citation and has to attend to the payment thereof, which is very troublesome.

3. As some car drivers may not carry coins with them
10 or deliberately do not want to pay the required parking fees, many parking meter attendants have to be employed to patrol the parking area to look for meter violators, which results in a waste of manpower and money.

15 SUMMARY OF THE INVENTION

Therefore, the object of the present invention is to provide an electronic parking meter which can eliminate the aforesaid drawbacks commonly associated with the conventional coin-operated parking meter.

20 Accordingly, the electronic parking meter of the present invention is adapted to be installed inside a car and is adapted for use with a prepaid parking card. The prepaid parking card stores alterable prepaid parking information therein. The prepaid parking
25 information includes a remaining number of prepaid parking units. The electronic parking meter includes a card receiving device, processor means, and a display

device. The card receiving device is adapted to be disposed inside a passenger room of the car at a location visible from an exterior of the car, and is adapted to receive the prepaid parking card. The processor means
5 is disposed inside the card receiving device, and is operable so as to be adapted to read the prepaid parking information stored in the prepaid parking card that is received by the card receiving device, and to alter the prepaid parking information of the prepaid parking card
10 by reducing the remaining number of prepaid parking units by one at each start of a predetermined parking time duration that corresponds to one prepaid parking unit. The display device is mounted on the card receiving device, and is connected to and controlled
15 by the processor means so as to show parking payment status information thereon.

BRIEF DESCRIPTION OF THE DRAWINGS

Other features and advantages of the present invention will become apparent in the following
20 detailed description of the preferred embodiment with reference to the accompanying drawings, of which:

Figure 1 is a schematic block diagram of a preferred embodiment of an electronic parking meter according to the present invention;

25 Figure 2 is a perspective view of the preferred embodiment; and

Figure 3 is a schematic view of the preferred

embodiment when installed inside a car.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Figures 1, 2 and 3, the preferred embodiment of an electronic parking meter 1 according to the present invention is adapted to be installed inside a car, and is adapted for use with a prepaid parking card 2, which stores alterable prepaid parking information therein. The prepaid parking information includes a remaining number of prepaid parking units. As shown, the electronic parking meter 1 includes a card receiving device 10, processor means 11, and a display device 16.

The card receiving device 10 is adapted to be disposed inside a passenger room of the car at a location visible from an exterior of the car, and is adapted to receive the prepaid parking card 2. In the preferred embodiment, the card receiving device 10 has two card receiving slots 21, 21' adapted to receive two prepaid parking cards 2, 2' simultaneously. When the remaining number of prepaid parking units in one of the prepaid parking cards 2, 2' is zero, the processor means 11 reads and alters the prepaid parking information stored in the other one of the prepaid parking cards 2, 2'.

The processor means 11 is disposed inside the card receiving device 10, and is operable so as to be adapted to read the prepaid parking information stored in the prepaid parking cards 2, 2' that are received by the

card receiving device 10, and to alter the prepaid parking information of the prepaid parking cards 2, 2' by reducing the remaining number of prepaid parking units by one at each start of a predetermined parking time duration that corresponds to one prepaid parking unit. The processor means 11 includes a central processing unit 112, a card interface device 110, and a counting device 114. The central processing unit 112 is adapted to supply power to the relevant components and to transmit the prepaid parking information in the prepaid parking cards 2, 2' to the counting device 114 and the display device 16. The card interface device 110 is connected to the central processing unit 112 to couple the same to the prepaid parking cards 2, 2'. The counting device 114 is connected to the central processing unit 112 and the display device 16, and is operable so as to count down from the predetermined parking time duration.

The display device 16 is mounted on the card receiving device 10, and is connected to the central processing unit 112 and the counting device 114 of the processor means 11, and is controlled by the processor means 11 so as to show parking payment status information thereon. The parking payment status information shown by the display device 16 includes remaining prepaid parking time information obtained from the counting device 114, and the remaining number

of prepaid parking units stored in the prepaid parking cards 2, 2' that are received by the card receiving device 10.

The electronic parking meter 1 may further include
5 an indicating element 18 mounted on the card receiving device 10 and connected to and controlled by the processor means 11 for indicating operating state of the counting device 114. When the counting device 114 of the processor means 11 is in operation, the
10 indicating element 18 will keep on blinking. In addition, the electronic parking meter 1 may include start and stop buttons 120, 122 mounted on the card receiving device 10 and connected to the processor means 11. The start button 120 is operable so as to
15 initiate operation of the processor means 11. The stop button 122 is operable so as to terminate the operation of the processor means 11.

In use, the electronic parking meter 1 may be installed in the passenger room of the car behind a front
20 windshield 3, as shown in Figure 3, to enable a parking meter attendant 4 to read the parking payment status information shown by the display device 16 on the card receiving device 10. After the car driver has parked his/her car in a parking space, he/she inserts the
25 prepaid parking card 2 or cards 2, 2' into the card receiving slot 21 or slots 2, 2' in the card receiving device 10, and presses the start button 120 to actuate

the processor means 11 before leaving the car. The central processing unit 112 of the processor means 11 then reads the prepaid parking information stored in the prepaid parking card 2 inserted into the card receiving slot 21 via the card interface device 110, and alters the prepaid parking information of the prepaid parking card 2 by reducing the remaining number of prepaid parking units by one. In the embodiment, one prepaid parking unit corresponds to a parking time duration of 30 minutes. At the same time, the central processing unit 112 transmits the prepaid parking information to the counting device 114 and the display device 16. The counting device 114 hence starts counting down from the parking time duration (30 minutes) that corresponds to the prepaid parking unit deducted from the number of prepaid parking units by the central processing unit 112, and transmits the remaining prepaid parking time information to the central processing unit 112 and the display device 16. The display device 16 then displays the remaining prepaid parking time information obtained from the counting device 114 and the current remaining number of prepaid parking units in the prepaid parking card 2. When the predetermined parking time duration of 30 minutes expires, the central processing unit 112 will once again reduce the remaining number of prepaid parking units by one, and the above-described cycle is

repeated until the stop button 122 is pressed to terminate the operation of the processor means 11. At this point, the counting device 114 stops operation, and the parking time duration as shown on the display device 16 is reset to zero. In addition, when the
5 remaining number of prepaid parking units in the prepaid parking card 2 is zero, the processor means 11 reads and alters the prepaid parking information stored in the prepaid parking card 2'.

10 When the electronic parking meter 1 is in operation, the parking meter attendant 4 can read the remaining prepaid parking time information displayed on the display device 16 through the front windshield 3 of the car. Besides, the parking meter attendant 4 can also
15 tell whether the electronic parking meter 1 is in operation by observing the indicating element 18. If the indicating element 18 is not blinking, this indicates that the car driver has yet to press the start button 120 to initiate operation of the processor means
20 11 or that no prepaid parking unit remains in the prepaid parking cards 2, 2'. The parking meter attendant 4 can then issue a citation.

With the present invention, there is no need to install coin-operated parking meters along roads or
25 streets or to maintain a large force of parking meter attendants. Furthermore, since the electronic parking meter of the present invention is installed inside the

car, and is adapted for use with prepaid parking cards,
it is not attractive to thieves. Besides, parking
meter attendants can readily read the parking payment
status information on the display device of the
5 electronic parking meter from the outside of the car
to determine whether or not a citation is to be issued.
In addition, with the use of prepaid parking cards, car
drivers no longer need to carry a number of coins with
them. The prepaid parking cards may be purchased from
10 relevant authorities, or private institutions, such as
banks, convenience stores, etc., so that car drivers
can obtain them conveniently. Furthermore, since the
parking charge for each prepaid parking unit may vary
depending on the territory in which the prepaid parking
15 card is adapted to be used, the prepaid parking card
can also be adapted to contain information of the card
issuing authority. In view of the foregoing, it can
be appreciated that the electronic parking meter of the
present invention can eliminate the aforesaid
20 drawbacks commonly associated with the conventional
coin-operated parking meter, and is easy to operate.

While the present invention has been described in
connection with what is considered the most practical
and preferred embodiment, it is understood that this
25 invention is not limited to the disclosed embodiment
but is intended to cover various arrangements included
within the spirit and scope of the broadest

interpretation so as to encompass all such
modifications and equivalent arrangements.

I CLAIM:

1. An electronic parking meter adapted to be installed inside a car and adapted for use with a prepaid parking card, the prepaid parking card storing alterable
5 prepaid parking information therein, the prepaid parking information including a remaining number of prepaid parking units, said electronic parking meter comprising:

a card receiving device adapted to be disposed
10 inside a passenger room of the car at a location visible from an exterior of the car, the card receiving device being adapted to receive the prepaid parking card;

processor means disposed inside said card receiving device, and operable so as to be adapted to read the
15 prepaid parking information stored in the prepaid parking card that is received by said card receiving device, and to alter the prepaid parking information of the prepaid parking card by reducing the remaining number of prepaid parking units by one at each start
20 of a predetermined parking time duration that corresponds to one prepaid parking unit; and

a display device mounted on said card receiving device and connected to and controlled by said processor means so as to show parking payment status
25 information thereon.

2. The electronic parking meter of Claim 1, wherein said processor means includes a counting device



operable so as to count down from the predetermined parking time duration.

3. The electronic parking meter of Claim 2, wherein the parking payment status information shown by said display device includes remaining prepaid parking time information obtained from said counting device.

4. The electronic parking meter of Claim 3, wherein the parking payment status information further includes the remaining number of prepaid parking units stored in the prepaid parking card that is received by said card receiving device.

5. The electronic parking meter of Claim 2, further comprising an indicating element mounted on said card receiving device and connected to and controlled by said processor means for indicating operation state of said counting device.

6. The electronic parking meter of Claim 1, further comprising start and stop buttons mounted on said card receiving device and connected to said processor means, said start button being operable so as to initiate operation of said processor means, said stop button being operable so as to terminate the operation of said processor means.

7. The electronic parking meter of Claim 1, wherein said card receiving device has two card receiving slots that are adapted to receive two of the prepaid parking cards simultaneously.



8. The electronic parking meter of Claim 7, wherein,
when the remaining number of prepaid parking units in
one of the prepaid parking cards is zero, said processor
means reads the prepaid parking information stored in
5 the other one of the prepaid parking cards and alters
the prepaid parking information of the other one of the
prepaid parking cards.

