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CUSTOMERIZED DRIVING ENVIRONMENT SETTING SYSTEM FOR USE IN A MOTOR VEHICLE

BACKGROUND OF THE INVENTION

1. Field of the Invention

5 The present invention relates to a customized driving environment setting system for use in a motor vehicle and, more particularly, to such a customized driving environment setting system, which enables the owner of a motor vehicle to update the driving environment anytime and anywhere, and to download updated data wirelessly to update the setting
10 data.

2. Description of Related Art

 In recent years, following great improvement of the standards of living, most people would like to have one's own transportation vehicle. Either going to the office or school, or going outsidess for sightseeing on
15 holidays, many people use the private car as one's personal transportation vehicle.

 In order to fit individual's favorite, car suppliers are continuously providing high quality models having added values or added functions. Nowadays, motor vehicle accessories such as mobile telephone system, satellite navigation system, multimedia audio video system, electric seat,
20 and etc. that were used in high-class models in early days have now become standard attachments to a regular car. However, the setting of these attachments is complicated. The car owner may have to set the attachments of the car individually before or during driving subject to one's favorite.



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When changing the driver, the new driver may have to adjust the setting of every attachment of the car again.

Furthermore, the car owner himself cannot update the computer software built in every accessory of the car. When updating or upgrading
5 the computer software of every accessory of the car, the car owner shall have to drive the car to a particular repair shop or the original car supplier, asking the trained engineer to update the setting data. This setting data updating procedure is very inconvenient and wastes much time of the car owner.

10 Therefore, it is desirable to provide a customerized driving environment setting system that eliminates the aforesaid problem.

SUMMARY OF THE INVENTION

It is the main object of the present invention to provide a customerized driving environment setting system that enables the user to
15 update the internal data of a portable storage medium anytime and anywhere, and easily to set the driving environment of the motor vehicle subject to user's personal favorite.

It is another object of the present invention to provide a customerized driving environment setting system that enables the user to
20 update the setting data wirelessly.

To achieve these and other objects of the present invention, the customerized driving environment setting system comprises a data bus electrically connected to at least one motor vehicle accessory; a portable storage medium having stored therein multiple setting data adapted to set

the at least one motor vehicle accessory subject to a respective predetermined status of use; an electromagnetic card reader/writer electrically connected to the data bus; and a controller electrically connected to the data bus and adapted to control the electromagnetic card reader/writer to read the setting data from the portable storage medium for setting the status of use of the at least one motor vehicle accessory subject to the setting data. The portable storage medium can be an IC memory card of 64KB, 128KB, or any of various different capacities, or a high capacity storage medium such as compact flash card, smart media card, memory stick card, and preferably a 16MB IC high capacity card.

The customerized driving environment setting system further comprises a wireless download device, such as GSM module, GPRS module, pager module, and etc., adapted to download an updated data on board from a remote customs service center wirelessly, for enabling the electromagnetic card reader/writer to write the updated data into the portable storage medium to update the setting data.

Except wireless download, the portable storage medium can also be carried and taken out to a remote computer to update the setting data. The remote computer can be connected to a remote customs service center through a wired network, such as the Internet, or through a wireless network to download updated data. The remote computer can be the car owner's home computer, or an information station installed in airport, railway station, post office, bank, contracted repair shop, convenience shop, or contracted vendor. Through the remote computer distributed everywhere,

the car owner can update the setting data of the portable storage medium anytime and anywhere which is very convenient.

Furthermore, the car owner can directly input data into the portable storage medium through an input device in the car or a input device of the remote computer. For example, through the keyboard of the mobile telephone of the car, the voice control device of the car, or the mouse and keyboard of the home computer, etc., the car owner can update the setting data of the portable storage medium very conveniently.

Other objects, advantages, and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram showing the system architecture of the present invention.

FIG. 2 is a schematic drawing showing the telephone menu data content of the portable memory card according to the present invention.

FIG. 3 is a schematic drawing showing the remote computer installed in car owner's home according to the present invention.

FIG. 4 is a schematic drawing showing the information station installed in an airport according to present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1, a customized driving environment setting system installed in a car according to the present invention is shown comprising an electromagnetic card reader/writer 3, a controller 4, and a

plurality of motor vehicle accessories which are all connected to a data bus
1 (for example, CAN bus) of the electric system of the car. The card
reader/writer 3 is an electromagnetic data reader and writer that can read
and write to a portable memory card 2. The portable memory card 2 is an
5 electromagnetic data storage medium. According to this embodiment, the
portable memory card 2 is a 16MB high capacity IC card for the storage of a
huge amount of data to set a plurality of accessories of the car subject to the
predetermined status of use. When the portable memory card 2 is inserted
into the card reader/writer 3, the controller 4 may control the card
10 reader/writer 3 to read/write data from/to the portable memory card 2.

When entered the car, the car owner inserts his personal portable
memory card 2 into the card reader/writer 3, letting the card reader/writer 3
read several kinds of setting data from the inserted portable memory card 2
and the controller 4 set the status of use of every accessory of the car to a
15 predetermined status according to the setting data read from the inserted
portable memory card 2. For example, the setting of the mobile telephone
system 51 of the car is outlined hereinafter with reference to FIG. 2. The
portable memory card 2 has stored therein the car owner's personal PIN
code, and car owner's personal telephone menu setting data 53, which
20 includes car owner's mobile telephone number 531, frequent-use telephone
numbers 532 of two hundred persons with Chinese/English names, twenty
caller ID telephone numbers 533, twenty dial-out telephone numbers 534,
twenty quick-dial telephone numbers 535, one redial telephone number 536,
and etc. When the car owner inserted his personal portable memory card 2

into the card reader/writer 3 after entered the car, the controller 4 controls the card reader/writer 3 to read the aforesaid car owner's personal telephone menu setting data 53 and to restore the read data into the memory of the mobile telephone system 51 to replace the old data in the memory, thereby
5 causing the setting of the mobile telephone system 51 to be changed to the car owner's personal mobile telephone system environment. Further, subject to a strategy alliance with a telecommunication company, the data of the SIM card 530 can also be stored in the personal portable memory card 2 to identify the car owner when logging into the telecommunication
10 network.

The aforesaid personal portable memory card 2 can be stored with a variety of motor vehicle accessories' setting data indicated in FIGS. 1 and 2, such as electronic map data 541 and frequent-use navigation routes 542 for setting satellite navigation system 52, speaker 612's voice volume data 551
15 and display screen 622's resolution data 552, contrast data 553 and color tone data 554 for setting multimedia audio video system 6. Other setting data of motor vehicle accessories not indicated in figures can also be stored in the portable memory card 2, such as frequent-use radio channel setting data, sliding position data and seat back titling angle data for setting electric
20 seat, temperature and humidity data for setting air-condition system, sensitivity data for setting burglar alarm system, etc. Advertising data of contracted companies or commercial promotion data can also be gathered and stored in the so-called "all-in-one" personal portable memory card 2. Because the "all-in-one" portable memory card 2 can put setting data of a

variety of motor vehicle accessories together and can also be conveniently carried by the user, it can be used to set personalized driving environment.

Referring to FIG. 1 again, the mobile telephone system **51** has a GSM (Groupe Speciale Mobile) module **511**, and a keyboard **512** for data
5 input. Through the keyboard **512**, the user can control the card reader/writer **3** to update the data of the portable memory card **2** manually. The GSM module **511** of the mobile telephone system **51** can be used as a wireless download device. Through the GSM module **511**, the user can download updated data from the remote customs service center **9** wirelessly. Then the
10 controller **4** controls the card reader/writer **3** to write the downloaded updated data into the portable memory card **2**. Because the present invention allows the user to download a variety of updating data wirelessly when driving, the user can update the setting data of the portable memory card **2** wirelessly in anytime and anywhere.

15 The wireless download device can alternatively be a GPRS (General Packet Radio Service) module, CDMA (Code Division Multiple Access) module, or any of a variety of equivalent wireless communication modules that achieve the same effect. The transmission mode can adopt data transmission, short message, digital broadcasting, or any of a variety of
20 other equivalent methods.

In addition to the aforesaid car accessories setting data, the wireless updating content further include computer software for motor vehicle accessories, for example, computer software for GSM module **511**, mobile telephone system **51**, GPS (Global Positioning System) module **521**, TTS

(Text to Speech) module **611** of audio output device **61**, OSD (On Screen Display) module **621** of video output device **62**, and etc. The user can download the newly updated version of the related computer software anytime and anywhere without going back to the car supplier personally.

5 One main feature of the portable memory card **2** is its high portability and its updatability anywhere, i.e., the user can carry and take out the portable memory card **2** away from the car to a computer at a remote place to update the data. As shown in FIG. 3, the user can bring the portable memory card **2** home, and easily use the big display screen **71**, big keyboard
10 **73**, and mouse **72** (or voice input device) of a home computer system **7** to update the data of the portable memory card **2**. When the home computer system **7** connected to the Internet **74**, the user can log in the server of the remote customs service center **9** to use its powerful navigation server to update navigation routes and download updated data, enabling the card
15 reader/wirer **3'** of the home computer system **7** to write updated data into the portable memory card **2**. The user can also request the server of the remote customs service center **9** to download the updated data wirelessly to the GSM module **511** of the car in a preferable time or specific date to update the content of the portable memory card **2**.

20 Referring to FIG. 4, a remote computer, for example, the information station **8** installed in airport, railway station, bus station, post office, bank, convenience shop, service park of super highway, contracted repair shop, contracted vendor, or the like can also be used to update the data of the portable memory card **2**. The information station **8** has a card slot

82 adapted to receive the user's portable memory card 2, and a keyboard 81
for data entry. The information station 8 is connectable to the remote
customs service center through a wired network (Internet, intranet, extranet)
or wireless network. Thus the user can easily choose the nearest place in
5 time, or choose the most convenient place spread in everywhere, to update
the data of his (her) portable memory card 2.

Although the present invention has been explained in relation to its
preferred embodiments, it is to be understood that many other possible
modifications and variations can be made without departing from the spirit
10 and scope of the invention as hereinafter claimed.

CLAIMS

1. A customized driving environment setting system for use in a motor vehicle comprising:

5 a data bus electrically connected to at least one motor vehicle accessory;

a portable storage medium having stored therein multiple setting data adapted to set said at least one motor vehicle accessory subject to a respective predetermined status of use;

10 an electromagnetic card reader/writer electrically connected to said data bus; and

a controller electrically connected to said data bus and adapted to control said electromagnetic card reader/writer to read said setting data from said portable storage medium for setting the status of use of said at least one motor vehicle accessory subject to said setting data.

15 2. The customized driving environment setting system as claimed in claim 1, wherein said portable storage medium is a portable memory card.

3. The customized driving environment setting system as claimed in claim 2, wherein said portable memory card is a high capacity IC card.

20 4. The customized driving environment setting system as claimed in claim 1, 2 or 3 wherein said portable storage medium is connectable to a remote computer for updating said setting data.

5. The customized driving environment setting system as claimed in claim 4, wherein said remote computer is linked to a remote customs

service center and capable of downloading updated data from said remote customs service center for updating the setting data of said portable storage medium.

6. The customized driving environment setting system as claimed in claim 4
5 or 5, wherein said remote computer is an information station.

7. The customized driving environment setting system as claimed in any one
of the preceding claims, further comprising a wireless download device adapted to
download at least one updated data for enabling said electromagnetic card
reader/writer to write the at least one updated data into said portable storage
10 medium to update said setting data.

8. The customized driving environment setting system as claimed
in claim 7, wherein said wireless download device is adapted to download
said at least one updated data from a remote customs service center
wirelessly.

9. The customized driving environment setting system as claimed
15 in claim 7 or 8, wherein said wireless download device is a GSM (Groupe
Speciale Mobile) module.

10. The customized driving environment setting system as claimed in
any one of the preceding claims, wherein said at least one motor vehicle accessory
20 includes at least one of the motor vehicle accessory group of GSM (Groupe
Speciale Mobile) module, mobile telephone, GPS (Global Positioning
System) module, SNS (Satellite Navigation System), multimedia audio
video system, radio, electric seat, air-conditioning system, and
burglar-alarm system.

11. The customized driving environment setting system as claimed in any one of the preceding claims, further comprising an input device for input at least one updated data into said portable storage medium.

12. The customized driving environment setting system as
5 claimed in claim 11, wherein said input device is a keyboard.