

FIG. 15  
Module Re-usability Data Link Layer

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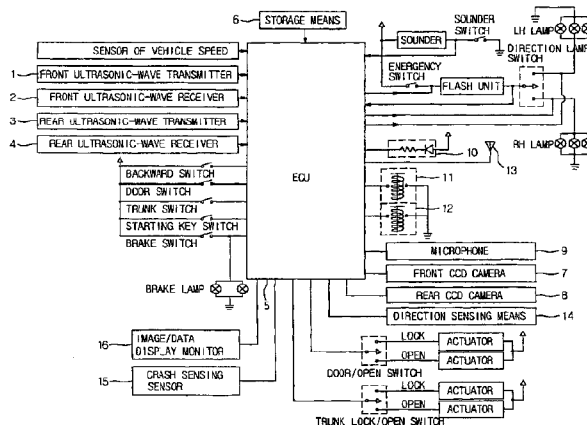
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(54) Title: ELECTRONIC CONTROL APPARATUS FOR VEHICLE



(57) Abstract: There is disclosed an electronic control apparatus for a vehicle which can provide data necessary to clear up the cause of the accident and to find out who is responsible for the accident, by which a warning is automatically given and images and sound around the vehicle are recorded in real-time by an electronic control, when prevention of traffic and burglar accidents are required. For this, the electronic control apparatus for a vehicle according to the present is characterized in that it comprises front/rear signal transmitters/receivers for transmitting/receiving given signals to measure the speed of front/rear vehicles and the distance between his/her own vehicle and the front/rear vehicles, an image pick-up means for picking up images of the front/rear vehicles or the visual field within his/her own vehicle, a microphone for collecting sound around his/her own vehicle, an electronic control unit connected to control the front/rear signal transmitters/receivers, the image pick-up means and the microphone, respectively, and a storage means for storing respective information calculated under the control of the electronic control unit.

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## ELECTRONIC CONTROL APPARATUS FOR VEHICLE

### TECHNICAL FIELD

The invention relates generally to an electronic control apparatus for a  
5 vehicle capable of preventing a traffic accident and a burglar accident. More  
particularly, the present invention relates to an electronic control apparatus for  
a vehicle which can provide data necessary to clear up the cause of the  
accident and to find out who is responsible for the accident, in a way that an  
electronic control unit mounted on the vehicle automatically gives a warning  
10 and records in real-time images and sound around the vehicle, when  
prevention of the traffic and burglar accident is required.

### BACKGROUND OF THE INVENTION

A conventional unit for preventing a vehicle burglar can give a warning  
against intrusion of the vehicle. However, when the owner of the vehicle is at  
15 a long distance, there is a problem that the owner does not know instantly the  
intrusion when it occurred.

Also, the vehicle's traveling recording apparatus for recording the  
traveling of the vehicle can record only the operational state data on his/her  
own vehicle's internal system traveling state data on depending on the record  
20 of the vehicle. Thus, when an unexpected accident occurred, it is impossible  
to know the situation of other vehicles and the surrounding road situation.

Accordingly, only with his/her own vehicle's record, it is insufficient to  
prevent an unexpected accident and to find out who is responsible for the  
accident. Further, the misjudgment on who is responsible for the accident  
25 will cause not only an unfair economic damage but also the loss of manpower.

## SUMMARY OF THE INVENTION

The present invention is to solve the problems of the above conventional vehicle burglar prevention apparatus and the vehicle traveling recording apparatus. The purpose of the present invention is to provide an electronic control apparatus for preventing a traffic accident and a burglar  
5 accident, capable of performing the functions of measuring the speed and distance of front/rear vehicle, monitoring rear objects, recording images and sound of the front/rear visual field and preventing a burglar accident.

In order to accomplish the above object, an electronic control apparatus  
10 for a vehicle according to the present invention is characterized in that it comprises front/rear signal transmitters/receivers for transmitting/receiving given signals to measure the speed of front/rear vehicles and the distance between his/her own vehicle and the front/rear vehicles, an image pick-up means for picking up images of the front/rear vehicles or the visual field  
15 within his/her own vehicle, a microphone for collecting sound around his/her own vehicle, an electronic control unit (ECU) connected to control the front/rear signal transmitters/receivers, the image pick-up means and said microphone, respectively, and a storage means for storing respective information calculated under the control of the electronic control unit.

20 Preferably, the electronic control apparatus for the vehicle according to the present invention further includes a direction sensing means for sensing in real-time the direction where the vehicle is located, wherein the direction sensing means is controlled by the electronic control unit and the direction information calculated by the electronic control unit is recorded on the storage  
25 means.

More preferably, the electronic control apparatus for the vehicle according to the present invention further includes an image/sound recording reset switch for resetting the image and sound information recorded on the storage means.

5 Further, the electronic control apparatus for the vehicle according to the present invention further includes a burglar alarm means for preventing a burglar accident.

Preferably, the burglar alarm means includes a lamp or a sounder for alarming the intrusion by foreigners, and a burglar alarm function reset switch  
10 for resetting a burglar alarm function.

More preferably, the burglar alarm means further includes a burglar-alarm transmit antenna for transmitting, by wireless, the signal alarming the intrusion by the foreigners to the driver located at a long distance.

Also, the signals of the front/rear signal transmitters/receiver are  
15 ultrasonic waves more than 20,000 Hz.

Especially, the storage means is attachable from the electronic control unit, and the storage means may be a HDD (Hard Disk Driver).

Preferably, the storage means is compatible with PCs, and the information recorded on the storage means can be reproduced at the PC.

20 More preferably, the electronic control apparatus for the vehicle according to the present invention further includes a vehicle speed sensor, a backward switch, a door switch, a trunk switch, a start key switch, a brake switch, a sounder switch, a door lock/open switch, a trunk lock/open switch, a direction indicating light switch, a stop light, LH/RH lamps, sounders and  
25 flash units.

Also, the electronic control apparatus for the vehicle according to the present invention may further include a crash sensor for sensing a crash, and

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