The application of new technologies of semi-conduct, computer, and communications on the transportation vehicle can improve the vehicle safety and accelerate the vehicle performance dramatically. And this vehicle can also communicate with all other information suppliers at any time. This is called the Intelligent Vehicle (IV). This research will study the dynamic safety of the vehicle when it is in driving situation. It will also accelerate the communications between "driver and vehicle" to increase the overall driving safety. There are two parts which will be carried out separately in this research. And then the results will be integrated to upgrade the vehicle dynamic safety. The separate parts are: (1) Driving Monitoring and Warning System: To monitor the vehicle situations (i.e. speeds, relative position with other vehicles, …) and judge the dynamic safety and give warning if necessary. In addition to the warning system, the research on audio control will also be studied to accelerate the communications between "driver and vehicle" to decrease the driver loading. (2) Vehicle Dynamic Control: As the vehicle is judged to be "in danger" and still there are no response from the driver, the computer will take over the control and react some responses to avoid the danger.

Keywords : intelligent vehicle ; vehicle dynamic control ; subsystem ; intelligent transportation system

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