VOLVO

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Volvo Safety Concept Car - remote control communication

For Immediate Release

The remote control becomes a communication centre

ROCKLEIGH, NJ -- January 8, 2001 -- The Volvo Safety Concept Car (SCC) elevates technology to a new dimension to help protect the driver and his or her property. The remote control unit has evolved into a portable communication centre which interacts intelligently with the car to help enhance security and comfort.

The remote control unit, which has been developed into a Volvo Personal Communicator (VPC), is the basis for the personal security system and is an example of the way in which Bluetooth technology can be harnessed in future-generation cars.

The VPC has been developed in cooperation between Volvo Cars and Swedish companies Fingerprint, Combitech and Humpf Design, and it marks the evolution of the remote control unit into a keyless vehicle system. The system makes it possible to unlock and start the car, for instance, without the need to activate the remote control unit.

The car and remote control unit communicate automatically - with or without the driver's involvement - and the car can be individualised with a range of personal settings. The car recognises the remote control unit and sets itself up accordingly.

Passive unlocking and starting

All the driver has to do to unlock the door is to grasp the door handle. The car sends a signal to the VPC which the driver is carrying. The VPC transmits the remote control unit's identity code - and if this is correct, the door is unlocked.

At the same time as the car is unlocked, two-way communication is started between the VPC and the car, after which the car's settings are automatically adjusted to suit the driver's predetermined requirements.

The technology also permits passive starting without a key. The driver only needs to turn a rotary control to start up the engine.

The foremost benefit is that the time between unlocking the car and driving off is shorter - offering increased personal security if the car is parked in an unpleasant environment.

When the driver leaves the car, the relevant data is transmitted to the remote control unit: the personal settings, lock and alarm status and so on. This gives the driver control over the car even from a distance; for example, it is possible to check via the remote control unit's display that the car really is locked.

Personal settings

The VPC is personalised via a built-in fingerprint sensor. After that, it can be programmed with a variety of personal settings, for example if only the driver's door or additional doors should be unlocked, individual settings for the driver's seat, steering wheel, pedals, rear-view mirrors and so

on.

The VPC can also be pre-programmed with different destinations so that the driver does not need to set the navigation system before driving off - the settings are already completed when the door is unlocked.

Communication through telematics
In this personal communication between car and remote control, the driver can also add certain health-related data (information about allergies to medicines, heart problems and so on). This information is transferred to the car's telematic system and in the event of an accident, it is also conveyed to the emergency response services. In this way, rescue personnel can have direct access to medical information already while they are on the way to the scene of the accident, which can lead to quicker, more efficient and more reliable treatment.

The telematic system that is found in the SCC is a further development of Volvo On Call (which in the USA goes under the name of Volvo On Call Plus). Joint studies by the Ford Research Laboratory and Volvo Cars have shown that it is possible to increase the amount of important information that is sent from the car to the alarm centre in the event of an accident. This information includes pictures taken by cameras located inside the car.

The enhanced On Call system also automatically notes how many people are in the car at the time of an accident, where they were sitting, how many of them were using the safety belt and the type of accident in which the car was involved. The system will even, to a certain extent, be able to provide feedback on the actual collision force to which the occupants were subjected.

Reads fingerprints
The Volvo Personal Communicator has even more areas of use, however. Here are a few examples:

Personal settings can be pre-programmed in the car or in the VPC, making it possible to change them from a distance.

The identity of the VPC unit is changed if another authorised user presses his or her finger against the fingerprint sensor. The settings are then altered to suit the parameters selected by this particular user, which makes it possible for several persons in a family to use the same VPC unit. This brings benefits in terms of both safety and comfort.

Volvo has chosen to place the fingerprint sensor in the remote control unit so as to separate the driver physically from the car while still offering full functionality. The fingerprint sensor is therefore not connected to unlocking or starting of the car. This minimises the risk of hostage-taking in an attempted theft. In a threatening situation, all the driver has to do is to hand over the remote control, which then functions like a conventional car key.

The VPC can also be placed in a setup offering limited functionality - so-called valet mode. In this mode, no personal settings are transferred to the car. Instead, the car adopts a standard setup at the same time as the luggage compartment and glove compartment remain locked. However, the car itself can still be unlocked, started and driven. Practical and secure when handing over the car to a hotel's valet parking service or the workshop for service.

Heartbeat sensor warns if anyone is inside the car
The heartbeat sensor registers the sound of a beating heart - both human and animal. The sensor is activated if for instance a sleeping child has been left in the child seat and the driver locks the door. A signal is transmitted to the remote control unit, which alerts the driver via a combination of audible signals and vibration pulses.

The heartbeat sensor is also activated if anyone enters the car and hides inside. In such a case, the driver is not alerted automatically; instead, he or she must manually request this information within a distance of 100 metres from the car.

If the sensor is activated, the remote control unit transmits a quiet signal so that the driver can withdraw without being detected, so as to avoid a more threatening situation. The alternative is for the driver to press the "Panic" button, which deploys the car alarm to scare off the intruder.

The system has been integrated with the car in a joint development operation between engineers from Volvo Cars and the Ford Research Laboratory.

Checking the car
The so-called Check Car function is activated via a short press on the "Panic" button or via a menu selection. At the same time, other on-board information is also monitored, for instance whether the doors, sunroof and windows are locked.

Already existing functions such as activation of light sources inside and around the car (Approach Light) and illumination of the driveway (Home Safe Lighting) are carried over in the VPC system.

These functions are activated via buttons in the VPC unit's front panel. Opening the cover reveals additional buttons for customising the personal settings in the menu system, along with an information display.

Enhanced communication with the VPC via a cellphone
Two-way communication utilising Bluetooth technology makes it possible for the VPC to communicate with the car via a cellphone.

If Check Car is activated within a distance of 100 metres from the car, the VPC unit communicates directly with the car. If the driver is more than 100 metres away, the VPC can communicate with the car via the cellphone system.

When the driver leaves the car, all trip-related information and certain navigation system data are transmitted to the remote control unit. This makes it possible for the driver to use the VPC as an alarm clock, for instance. The remote control unit "knows" the distance to the destination, the current traffic situation, average speed, fuel consumption, remaining fuel quantity and so on, and it can be programmed so that it informs the driver when it is time to resume the journey in order to get to the destination at a given time - an excellent tool when stopping for a meal on a long journey.

Bluetooth technology also makes it possible to transmit information between the VPC and a PC or hand-held computer. This is an excellent tool for maintaining driving logs, journey planners, address books, E-mail addresses, data files and more.

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