February 2002

CyberCars

Cybernetic Technologies for the Car in the City

Project Statement

Most European cities faces numerous challenges associated with the use of private vehicles. Problems include road congestion, energy expenditure, noise and pollution, all of which degrade the quality of urban life. Therefore, historical cities centres are facing severe problems, traditional commerce in them declines, moving to the periphery, and they become less attractive to tourists.

Technology has the potential to contribute to a sustainable development of our European cities with a new type of vehicle. These vehicles, which we call cybercars, are designed specifically for public use in cities and have fully autonomous driving capabilities in order to provide on-demand door-to-door service.

The main objective of the CyberCars Project is to accelerate the development and the diffusion of this novel transportation system by improving the performances and lowering the cost. For this, we bring together most of the European actors of this field, for testing and exchanging best practices and sharing some of the development work A major part of the Project will be the development and testing of several key technologies for the enhancement of the existing systems. These technologies concern better guidance, better collision avoidance, better energy management, better fleet management and the development of simple, standard and friendly user interfaces. Cooperative work is also needed at the European level in order to reach a consensus on the certification standards and procedures of these systems, which are now developed in a very imprecise regulatory framework.

CyberCars' goal is to develop, test and certify key novel technologies for cybercar systems, in order to offer a new efficient urban transport.

Cybercar Definition

Cybercars are road vehicles with fully automated driving capabilities. A fleet of such vehicles forms a transportation system, for passengers or goods, on a network of roads with on-demand and door-to-door capability. The fleet of cars is under control of a central management system in order to meet particular demands in a particular environment. At the initial stages, cybercars are designed for short trips at low speed in an urban environment or in private grounds.

In the long term, cybercars could also run autonomously at high speed on dedicated tracks. With the development of the cybercar infrastructures, private cars with fully autonomous driving capabilities could also be allowed on these infrastructures while maintaining their manual mode on standard roads.

Cybercars are members of the general family of people movers and close to PRT (Personal Rapid Transit) but they offer the advantage of being able to run on any ground infrastructure which means they are cheaper and more flexible.

A European Research Framework

The CyberCars Project is supported by the key action "Systems and Services for the Citizen" of the Information Society Technologies programme of the European Commission (http://www.cordis.lu/ist/ka1/home.html). It is closely linked to the CyberMove Project (www.cybermove.org), which looks at the introduction of cybercars in several European cities, with the aim to identify and overcome barriers such as technology confidence, habits and customs, landscape scenery, user-friendliness, regulations, etc.

Milestones – Demonstrations

CyberCars is a 3 year Project which has been launched on August 1, 2001. The Project coordinator (INRIA) is installing on its grounds an experimental system consisting of half a dozen available automated vehicles, in order to test various technologies in a realistic environment with users from the organization. The test ground consists of a network of roads of more than one kilometre, shared with pedestrians and a few ordinary vehicles. The installation of this network and the cybercars, which should be completed by the first half of 2002, is already financed and is not part of the Project budget.

Broader Effort

CyberCars is part of a cluster of projects aiming to assess how new transportation technologies might enhance the sustainability of European cities.

Partners

The CyberCars Consortium, led by INRIA, consists of 14 partners: 7 academic research organisations, experts in transportation technologies, and 7 private industrial companies.

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