

Driving the future of in-vehicle ICT

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(PhysOrg.com) -- Information and communications systems in road vehicles are progressing steadily, but the research community behind these developments remains fragmented. Now a European initiative has linked key knowledge centres and is paving the way for the next generation of 'joined up' intelligent vehicle research.

The HUMANIST network set out to integrate Europe's expertise in the field of Intelligent Transport Systems (ITS) – technology and services for making driving easier and travel safer.

Four years ago, European competence in the field of ITS human-machine interaction was scattered across various countries and research institutes. By building bridges between these isolated pockets of knowledge, researchers can now tap into the expertise of others in the network to enhance the quality, safety and convenience of ITS systems or services, Jean-Pierre Medevielle, HUMANIST's coordinator, told ICT Results.

The ITS concept was invented some 15 years ago by scientists in Europe, the USA, and Japan. The latter forged ahead and created its own institute on human factor engineering, while Europe and the USA were left behind.

That is, until four years ago.

The network set out to integrate all of the European teams working in this area, and to give the European ITS scientific community "legibility",

according to Medevielle, who is the Deputy General Director at the French National Institute for Transport and Safety Research. The EU-funded Network of Excellence now boasts 130 members from 25 organisations.

Vast potential for ITS

The act of driving has changed very little since humans first created the automobile. This is now changing with rapid advances in in-vehicle driver information systems (IVIS) and advanced driver assistance systems (ADAS).

The obvious example of this change is the widespread use of in-vehicle navigation systems, which means the driver does not have to divert as much attention to navigating and searching for signs. Another example is cruise control in cars, which maintains the car's speed and decreases the driver's stress.

Listening to weather conditions while driving is also a form of IVIS, as the driver can then anticipate possible critical situations and adjust his or her driving accordingly.

All of these lead to a smoother and safer driving experience.

Further progress depends on understanding how people interact with the technology, and then applying this to IVIS and ADAS. Promoting this human-centred approach was a key issue for the HUMANIST team.

“Many ITS projects are finding their real benefits if the human-machine interaction is focused on a user-centric approach,” says Medevielle.

ITS is being applied to traffic and transport management, in-vehicle information systems, advanced driver assistance systems, and traveller

and traffic information services, through embedded or nomadic devices.

It can also enhance interaction between different infrastructures, such as transport and telecommunications, as well as between different transport modes, such as air, rail and road, public and private. Companies can also apply it to fleet management, or freight and logistics management, says Medevielle.

Smoothing the bumps in the roads

Despite the advances in ITS, numerous questions are being raised about how such developments may impact on drivers' behaviour and attitudes. Advances in assistance systems, for example, mean that technology is now taking over tasks traditionally controlled by the driver.

HUMANIST played a central role in understanding how ITS affects a driver's behaviour, and has organised several conferences and workshops on the subject. These events brought together leading researchers in the field and promoted the exchange of knowledge.

A book, 'Critical Issues in Advanced Automotive Systems and Human-Centred Design', has also been produced by the network, which Medevielle says is "considered the reference document" in the field.

Self-sufficiency and the future

The four-year project drew to a close earlier this year, but to ensure the future of ITS research in Europe a self-sustaining Virtual Centre of Excellence was created.

"This means that the community will operate as a virtual institute, and not a joint or merged institute," Medevielle explains. "It will continue the

work of HUMANIST by renewing the strategic research agenda, sharing new knowledge and a joint vision of the scientific future of the domain, and boosting the new generation of scientists through ad hoc training, in-depth education and the immersion of young scientists in the world of their elders.”

To further the exchange of information among researchers, the network has created a cycle of open scientific conferences with participants coming from Europe, Japan, Australia, Canada, and the USA.

Self-sufficiency will be achieved through different activities, including providing services and training activities for professionals on a commercial basis to other members or external clients.

The HUMANIST network received funding from the EU’s Sixth Framework Programme for research dealing with human-centred design for IVIS and ADAS systems.

By establishing the Virtual Centre of Excellence, the HUMANIST members will continue the substantial progress already made in this field, and help to establish Europe as a driving force in in-vehicle, ICT-based systems.

Provided by [ICT Results](#)

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