Tutorial on Safety of Transport Systems

24 February 2006

Braunschweig, Germany

http://www.noehumanist.org/

Introduction

The European Network of Excellence HUMANIST (Human Centred Design for Information Society Technologies) organises training courses, workshops and seminars for professionals in the area of road transport. In the tutorial, "Safety of Transport Systems" lecturers from European research centres will share their knowledge on safety and animate discussions on this important topic, as the development of the new technologies of information and communication will, in the coming years, transform deeply the uses and the practices in transport. The current developments, in the field of road telematics and driver assistance systems, may constitute a real opportunity of help for mobility and road safety. They raise nevertheless, numerous questions about their effectiveness, possible positive and negative modifications of behaviour or attitudes and about their acceptability by drivers.

The HUMANIST tutorial has been shaped to generate **interactive debate with experts from different fields of transport and mainly automotive and aeronautics**. This tutorial will give the great opportunity to participants to be trained on Safety of Transport System, to have fruitful discussion on that topic with a diversity of point of views.

The tutorial

The tutorial consists of two parts:

1. Safety in design of intelligent transport systems

Lectures are given to transfer knowledge from experts in transport research on the following questions:

- What are the functions of ITS, and their consequences on safety?
- How can we design systems so that safety is taken into account?
- How can we evaluate systems on safety aspects?

2. Safety in transport

In this part we focus the discussion on safety in the wider context of transport and the future of transport systems.

Agenda

9.00	Introduction to the HUMANIST network and the workshop	Yvonne Barnard, EURISCO
9.30	Lecture 1: Safety and ITS functions in cars and their potential consequences on safety	Annie Pauzié, INRETS
10.30	Coffee break	
11.00	Lecture 2: Automation, safety and human-centred design of safety-critical systems	Guy Boy, EURISCO
12.00	Lecture 3: Measurement methods and techniques for evaluating ITS with respect to safety-relevant criteria	Joseph Krems, CUT
13.00	Lunch	
14.00	Lecture 4: Public impact of ITS	Ralf Risser, FACTUM
15.00	Questions and discussion	
15:30	Coffee break	
16.00	Panel on Cooperative transport systems: shared authority, started by a presentations of cooperative systems in aviation and road transport followed by discussion	Stella Nikolau, CERT/HIT Guy Boy, EURISCO
17.30-18.00	Wrap-up	

Lecturers

Dr. Yvonne Barnard, EURISCO International, France

Prof. Dr. Guy Boy, EURISCO International, France

Prof. Dr. Joseph Krems, Chemnitz University of Technology, Germany

Stella Nikolaou, CERTH/HIT, Greece

Dr. Annie Pauzié, INRETS, France

Prof. Dr. Ralf Risser, Factum, Austria

Short content of the lectures

Annie Pauzié, INRETS: ITS functions and their potential consequences on safety

This presentation aims to introduce the general principles of ITS functions in transport in relation to road safety. It will develop and overview of what types of functions can be included in the broad designation of « ITS », including functions in public transport or on motorway such as VMS, without too much detail but in such a way that relationships between implementation of ITS in transport and consequences on road safety can be established. It will focus in more detail on the safety issues raised by the implementation of some ITS functions in the vehicle such as functions related or not related to the driving task, good design / poor design consequences for the same function, cooperation between driver and system for assistance system, risk homeostasis and appropriation for assistance functions, ergonomic approach based upon user needs and requirements; inputs for systems design and safety evaluation. The current European position concerning this issue in relation with the publication of the European Statement of Principles will be briefly presented and broad outlines the ITS future functions perspectives will be touched on.

Guy Boy, EURISCO: Safety and human-centered design of safety-critical systems

Safety is freedom from accidents and human losses. Accidents are complex multi-causal events, most of the time impossible to predict. Therefore, it is hard to maintain safety. In my talk, I will try to show you how we can take into account safety in a human-centered approach to design. I will use my experience in the analysis, design and evaluation of aerospace systems. There are various issues that need to be discussed such as safety-driven usability and standards, toward a safety culture that enable the management of safety. Taking into account safety is a matter of developing and using methods and tools during the whole life cycle of a product. It starts with the analysis of the requirements and risks involved in the use of this (safety-critical) product. Both formative and summative evaluation play a significant role. We will see what kinds of human factors are essential to be taken into account such as workload, situation awareness and crew resource management. Finally, I will talk about experience feedback, in particular incident and accident investigation and reporting. We will discuss the relevance and possible adaptation of these concepts, methods and tools in the automotive sector.

Joseph Krems, Chemnitz University of Technology: Measurement methods and techniques for evaluating ITS with respect to safety-relevant criteria

On-board Traffic Information and Control Systems (TICS) for drivers are becoming more and more common these days. While driving, these systems provide information about the status of the vehicle, the optimal route, traffic jams, etc. Despite the usefulness of such systems, one could be concerned about the potential distraction and the additional cognitive load these systems impose on the driver, leading to an increased risk of accidents. Thus, it becomes obvious that methods for assessing the HMI of in-vehicle information systems for safety are needed. One possibility is to investigate new systems on-board while driving in real traffic or a driving simulator. Because this approach is very demanding and expensive, looking for an easy-to-use method applicable in the very early stages of the system development would be worthwhile. Several techniques like the occlusion technique or the peripheral detection task have recently come under consideration as candidates for an assessment tool. The major aim of the talk is to give an overview over techniques available and to discuss the validity and usability of several techniques for HMI assessment of in-vehicle information systems.

Ralf Risser, FACTUM, Austria: Public impact of ITS

It is an old discussion topic that systems meant to improve safety and comfort of drivers equipped with these systems could have non-planned for and in some cases adverse effects for other groups. These effects may be expected mainly in the frame of communication between road users. Two different types of aspects will play a role in this respect: one of behaviour diffusion (unequipped drivers imitate the behaviour of equipped ones) and one of interacting in areas that have to be shared among different groups (intersections, pedestrian crossings, driving through residential areas, etc.). There, effects could for instance be generated via changes in speed caused by a certain equipment, which would influence all communication with other road users. A systematic diagram (Equipment types) X (Possible effects) X (Road users/Residents) will be drawn and discussed, and empirical evidence will be reported where available.

Stella Nikolau CERT/HIT & Guy Boy, EURISCO: Panel on Cooperative transport systems: shared authority

Intelligent transport systems do not only address individual transport means such as cars and airplanes, but also the larger system (traffic management systems, air traffic control). This rises questions on shared authority: between drivers/pilots, traffic management and intelligent systems in and outside the car/airplane. The panel starts with short introductions by the panel members, with a focus on different transport domains, followed by a discussion with the audience on what we can learn from the different domains, the future perspectives and the opportunities and problems for the future with regard to safety.

Location

The Humanist tutorial will take place at the DLR, research airport, Lilienthalplatz 7, 38108 Braunschweig, Germany

Fees and payment

The fee for the Humanist tutorial is

150,- € **Delegates**
140,- € **Members of universities and public authorities**
120,- € **GZVB members**
110,- € **ZVB members**
free **students (without course material).**

This includes lectures, course materials, lunch and coffee breaks.

Registration Deadline

The deadline for registration is **27 January 2006**, but it is recommended to register as soon as possible, as the number of participants is limited. If a delegate registration is cancelled after 27 January 2005 no conference fee will be refunded, but the appointment of another delegate is still possible.

Contact Information and organisation

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Humanist Tutorial Registration Form

24 February 2006

Braunschweig, Germany

Fill out the form below and fax before **27 January 2006**, to

GZVB e.V.
Herrmann-Blenk-Str. 23
D - 38108 Braunschweig
Fax: +49 531 354 06 74
Phone: +49 531 354 06 73

First Name _____

Last Name _____

Institution _____

Function _____

Address _____

_____

_____

City _____

Postal Code _____

Country _____

Email _____

Tel _____

Fax _____

Braunschweig Hotel List

Participants must make their own hotel reservations below is a list of hotels in Braunschweig

http://www.hotel.de/Search.aspx?HotelAgentNr=906003&hs%5Fvalidate=2&hs%5Fsearchmode=1&hs%5Flandnr=79&hs%5Foldcity=Braunschweig&hs%5Flocationnr=31747&hs%5Fcity=Braunschweig&hs=2&lng=fr