



INTELLIGENT TRANSPORTATION SYSTEMS

<http://www.ieee.org/its>



IEEE ITS COUNCIL NEWSLETTER

Editor: Prof. Alberto Broggi, broggi@ce.unipr.it

Vol. 4, No. 2, April 2002

In This Issue

Council News	3
From the Editor	3
From the IEEE ITS Council President	3
Telematics: Safe and Fun Driving	4
Report on ITS Council Administrative Committee Meeting	9
Periodical Review and Recent Publication Activities	10
Calendar of Council Events	10
CFP: IEEE ITSC 2002, Sept 3-6, Singapore	11
Report on IEEE Transactions on ITS	12
IEEE Transactions on ITS - Index	13
CFP: IEEE Transactions on ITS	16
Non-Council ITS News	19
Call for Volunteers	19
A glimpse on the Web	20
Upcoming Conferences, Workshops and Symposia	21
CFP: IEEE Intelligent Systems Magazine	22
Intertraffic Innovation Award	22
EU Conference on Sustainable Transport Research	25
CFP: NDIA 2nd Annual Intelligent Vehicle Systems Symp.	26
Book Review	27

Web Archive

All past issues of this Newsletter in different electronic formats can be reached through the Council's Official Web Site at: <http://www.ieee.org/its>

Electronic Newsletter Subscription

To obtain a free short announcement in your e-mail as soon as the next Newsletter issue is available, please sign in through the Council Web Site at: <http://www.ieee.org/its>

ITSC Executive Committee

President:

Daniel J. Dailey, d.dailey@ieee.org

Immediate Past President:

Ümit Özgüner, u.ozguner@ieee.org

Vice President Conferences:

H. Hashimoto, h.hashimoto@ieee.org

Vice President Finance:

Emily Sopensky, e.sopensky@ieee.org

Vice President Publications:

Yilin Zhao, y.zhao@ieee.org

Secretary:

Charles J. Herget, c.herget@ieee.org

Transactions Editor:

Chelsea C. White, c.white@ieee.org

Newsletter Editor:

Alberto Broggi, a.broggi@ieee.org

Information for contributors

Announcements, feature articles, books and meetings reviews, opinions, letters to the editor, professional activities, abstracts of reports, and other material of interest to the ITS community is solicited.

Please submit electronic material for consideration in any of the following formats: \LaTeX , plain ASCII, PDF, or Word, to the Editor at broggi@ce.unipr.it at least 1 month prior to the newsletter's distribution:

Issue	Due date
January	December 1 st
April	March 1 st
July	June 1 st
October	September 1 st

Permission to copy without fee all or part of any material without a copyright notice is granted provided that the copies are not made or distributed for direct commercial advantage, and the title of the publication and its date appear on each copy. To copy material with a copyright notice requires specific permission. Please direct all inquiries or requests to IEEE Copyrights Office.



THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

THE IEEE INTELLIGENT TRANSPORTATION SYSTEMS COUNCIL

PRESIDENT: Daniel J. Dailey, *University of Washington, Seattle, WA 98195, USA*
 IMMEDIATE PAST PRESIDENT: Ümit Özgüner, *Ohio State University, Columbus, OH 43210, USA*
 VICE PRESIDENT CONFERENCES: Hideki Hashimoto, *University of Tokyo, Tokyo 106-8558, Japan*
 VICE PRESIDENT FINANCE: Emily Sopensky, *The Iris Company, Austin, TX 78751, USA*
 VICE PRESIDENT PUBLICATIONS: Yilin Zhao, *Motorola, Libertyville, IL 60048, USA*
 SECRETARY: Charles J. Herget, *Livermore, CA 94550, USA*
 TRANSACTIONS EDITOR: Chelsea C. White, *Georgia Institute of Technology, Atlanta, GA 30332, USA*
 NEWSLETTER EDITOR: Alberto Broggi, *Università di Parma, Parma, I-43100, Italy*

COMMITTEES

FINANCE COMMITTEE: Emily Sopensky (Chair), Richard Klafter, Bill Scherer, Paul Kostek
CONFERENCES AND MEETINGS COMMITTEE: Hideki Hashimoto (Chair), T. F. Fwa, Michel Parent, Toshio Fukuda, Ichiro Masaki, Emily Sopensky, Umit Ozguner
PUBLICATIONS COMMITTEE: Yilin Zhao (Chair), Alberto Broggi, Hideki Hashimoto, Toshio Fukuda, Ichiro Masaki, Roger Pollard, Fei-Yue Wang, Chelsea White
NOMINATIONS AND APPOINTMENTS COMMITTEE: Umit Ozguner (Chair), Rye Case, Toshio Fukuda, Chip White
CONSTITUTION AND BYLAWS COMMITTEE: Rye Case (Chair), Charles Herget, Umit Ozguner, Chip White
TECHNICAL ACTIVITIES COMMITTEE: Ichiro Masaki (Chair), Anna Hauksdottir (subcommittee on Air Traffic), Ryuji Kohno (subcommittee on Communication Networks), Bin Ning (subcommittee on Railroads)
STANDARDS: Robert Barrett
LONG TERM PLANNING: Umit Ozguner
FELLOWS NOMINATION COMMITTEE: Richard Klafter
PUBLIC RELATIONS: Ka C. Cheok
EDUCATION OUTREACH: Benn Coifman
ITSC LIAISON: Toshio Fukuda
IV LIAISON: Ichiro Masaki
WC LIAISON: Chip White

SOCIETIES REPRESENTATIVES

Aerospace and Electronic Systems: Paul Kostek
Antennas and Propagation: L. Wilson Pearson, W. Ross Stone
Communications: vacant
Computer: Alberto Broggi
Consumer Electronics: Virginia Williams
Control Systems: Petros Ioannou, Ka C. Cheok
Electromagnetic Compatibility: Mark Montrose, Andrew Drozd
Electron Devices: John Troxell, Krishna Shenai
Industrial Electronics: Brian K. Johnson, Okyay Kaynak
Instrumentation and Measurement: Stanley Young, Carlos Sun
Microwave Theory and Techniques: Charlie Jackson
Power Electronics: Seth Sanders, Dean Patterson
Reliability: Lori M. Kaufman, Ann Campbell
Robotics and Automation: T. C. Steve Hsia, Stefano Stramigioli
Signal Processing: James Krogmeier
Systems, Man and Cybernetics: Fei-Yue Wang, William Scherer
Vehicular Technology: Robert M. Barrett, E. Ryerson Case



COUNCIL NEWS



From the Editor

by Alberto Broggi

Dear Colleagues,

with the current issue you will witness a major improvement in the information delivered to our subscribers: we have included two new sections. They will serve as a brief agenda of the next events (conferences, symposia, meetings, workshops) related to any aspect of Intelligent Transportation Systems, and will give a glimpse of some interesting websites that describe ITS-related projects and activities in general. Anyone interested in adding new information to the two new sections is welcome to contact the e-mail addresses specified in the introduction of each section.

Again, I encourage you to contact me via e-mail at broggi@ce.unipr.it regarding ideas and suggestions on how to improve our Newsletter, the main IEEE sponsored means of communication among ITS researchers.



From the IEEE ITS Council President

by Daniel J. Dailey

Dear Colleagues,

Since the last newsletter the ITS Council has elected new officers. I am pleased to note that the new president, Charles Herget, has long term experience in IEEE that will help to guide the council during the fiscally challenging time facing IEEE. All of the newly elected officers, identified on page nine, bring a wealth of experience to the administrative committee that guides the council into the future.

In terms of the future, I was recently in China where I had the opportunity to talk about the council history. I was asked about starting a chapter of the ITS Council in Beijing and did not really know how to respond. As a council we do not have direct membership, but it turns out that the IEEE governing structure permits Councils to have chapters. I have long believed that the future for the ITS Council should be to become the IEEE ITS Society, and one step in that direction would be establishing chapters whose members would become the membership of the future ITS Society. If you, and a group of colleagues in a geographical region, would like to consider forming a chapter I encourage you to write to me at dan@its.washington.edu to open this discussion.

I would also like to thank the newsletter editor for once again volunteering his time to pull together the ITS Council's newsletter. In addition to his editorial activities, he has had to beg and cajole this officer to write even the short piece you see here. So, thank you Alberto for a newsletter that was reviewed very positively by the IEEE periodicals review committee as detailed on page ten of this issue.





Telematics: Safe and Fun Driving

by Yilin Zhao

Telematics: Safe and Fun Driving

*Reprint of the article appeared on
IEEE Intelligent Systems, January-February 2002, p.10-14*

YILIN ZHAO is a Distinguished Member of the Technical Staff at Motorola. His research interests include intelligent transportation systems, mobile-phone architecture and its positioning systems, vehicle location and navigation systems, integrated-circuit place-and-route systems, and real-time computer systems. He received his BE from Dalian University of Technology and his MS and PhD in electrical engineering: systems from the University of Michigan. Dr. Zhao has delivered ITS tutorials and seminars at many universities, IEEE, SAE, and other international conferences. He is a senior member of the IEEE, vice president of the IEEE ITS Council, and associate editor of the council's Transactions on Intelligent Transportation Systems. Contact him at Motorola, 600 N. US Hwy. 45, Libertyville, IL 60048; yilin.zhao@ieee.org, burch.dlut.edu.cn/~yzhao.

As our society rapidly advances toward an information age, more and more people and their vehicles will depend on wireless technologies to keep them connected with others and to facilitate safe, efficient travel.

Europeans have coined a term for this exciting field: telematics that is, the use of computers to receive, store, and distribute information over a telecommunications system. The automotive industry quickly adopted the term to describe any system that provides location-based services for a vehicle over the wireless telecommunications network. In other words, telematics now generally refers to any automotive system that combines wireless technology with location-based services.

With more than 40 million vehicles sold worldwide each year and more than 935 million cellular customers by the end of 2001, the automotive telematics market is poised for explosive growth. Strategy Analytics estimates that by 2007, approximately 55 percent of all new cars will have a telematics-capable terminal, as compared to approximately 7.5 percent in 2000. As Figure 1 shows, the revenue for the world market of in-car telematics terminals is expected to increase from \$5.5 billion in 2000 to

\$19.9 billion by 2007. Meanwhile, telematics systems should increase from 4 million units in 2000 to 27.4 million units by 2007 (including both original-equipment-manufacturer and aftermarket units). In the US alone, according to a Strategis Group study, revenues from automotive telematics equipment and services are projected to rise from less than \$100 million in 1999 to over \$5.3 billion by 2005. The number of subscribers will likely grow from under 0.2 million at year-end 1999 to more than 17 million by 2005.

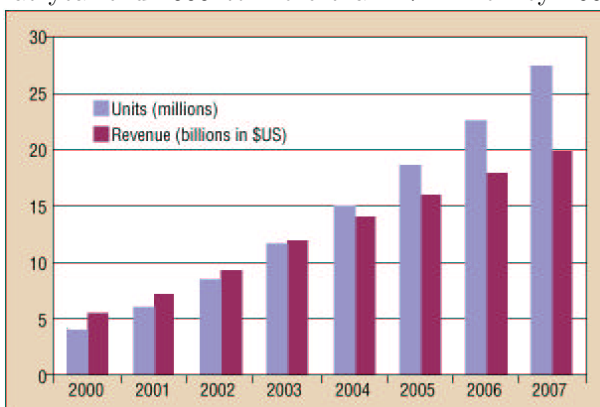


Figure 1: The Telematics forecast for North America, Western Europe, and Japanese markets (source: Strategy Analysis).

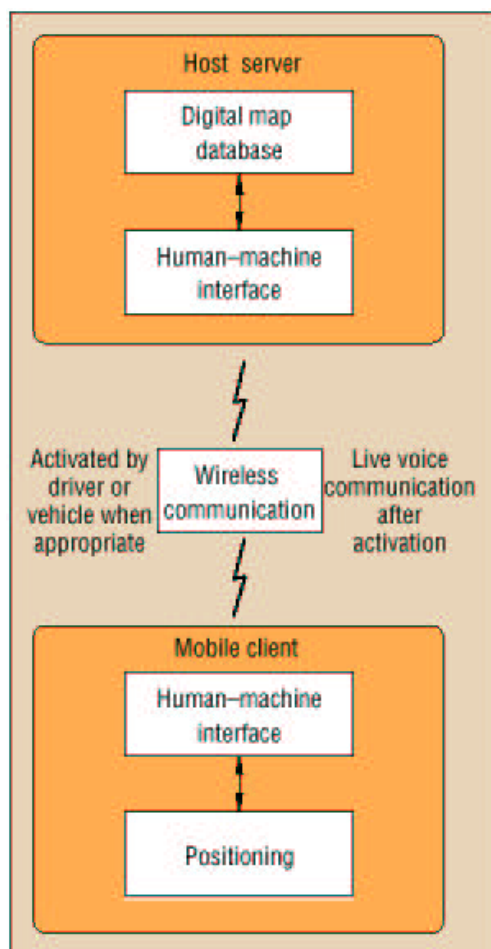


Figure 2: A simplified mayday system's architecture.

these market studies indicate that telematics systems have a promising future and should be economically rewarding.

Mayday systems

A typical example of an automotive telematics system is a mayday (or emergency call) system. This system instantly connects vehicle occupants to a service center for emergency assistance or roadside services while automatically reporting the vehicle's position. Many people in the US view such a system as their top priority when adding new equipment to their vehicles. It can expand to include many other services such as remote door unlocking, remote engine diagnosis, theft detection and notification, stolen-vehicle tracking, airbag deployment notification, automatic route guidance, travel information, and hands-free or voice activation of a mobile phone or pager.

An ATX Technologies survey of their telematics subscribers has confirmed the popularity of telematics systems. Approximately 70 percent of the subscribers indicated they would require a telematics system on the next vehicle they purchase. Over 80 percent would recommend the system to a friend or acquaintance. Because of this popularity, many automobile manufacturers have been and are now bundling it as an original-equipment-manufacturer unit for new cars. In the future, such systems will be able to add even more safety, security, and fun features, including connection to the Internet, control by enhanced voice recognition, and interfaces to entertainment equipment.

A mayday system uses a cellular phone for voice and data communications and an onboard global positioning system (GPS) receiver for positioning. The system's key features are its ease of use, cost-effective location capability, and on-demand wireless communication capability. Users can manually activate a mayday system by pushing a button, or the system can activate automatically when one of the vehicle's safety sensors detects an emergency event. With on-demand communications, the system does not need to communicate with the remote host on a regular basis, unlike most automatic-vehicle-location systems. This drastically reduces silent air time and its associated expenses.

How they work

Figure 2 depicts the basic modules or sub-systems for first-generation mayday systems. Both ends of the system can include additional modules to expand its functionality.

General Motor's OnStar and Ford's Vehicle Communication System are good examples of mayday systems. With OnStar, the user activates the system by pushing one of three buttons on an overhead console. The OnStar button connects the user to an OnStar advisor, the emergency button places a priority call to an advisor, and the answer/end button either answers or ends a call from an advisor.

Once the user presses the OnStar or emergency button, a system status light in the overhead console flashes. On certain vehicles, a multifunction display in an instrument cluster then shows status messages. The vehicle's cellular phone automatically calls the service center. Immediately after the communications channel is established, the system sends the vehicle identification number (VIN), position information obtained from the GPS receiver, and other

user and request-related data to the host over the cellular phone network's voice channel. Preferably, the system then confirms the vehicle's location using a map from the service center's map database. Without the VIN and the position and user data, locating the caller and obtaining vital information on time are difficult. Thus, the data sent over the wireless communications channel must be reliable. In general, other telematics systems have a similar working mechanism but might use a data channel to transmit the VIN and the position and user data.

On receiving the data transmitted from the in-vehicle telematics system, the service center converts the GPS coordinates to a local map grid, contacts the proper service providers, and directs them to the vehicle. For instance, in a medical emergency, the service center will contact the nearest 911 public-safety answering point and dispatch an ambulance. (The US uses the phone number 911 for emergency assistance. Other countries might use a different number, such as 999 for the UK, 17 for France, and 110 for China.) For a vehicle breakdown, the service center notifies a designated roadside service provider, which dispatches a tow truck. If required, the service center operator can talk with the driver until help arrives and notify designated family contacts in an emergency. When the user requests roadside assistance, the center can provide an estimated time of arrival and call back to confirm that the problem has been resolved.

Analog & digital systems

Mayday systems can be either analog or digital, depending on the cellular network used. Analog mayday onboard equipment typically consists of a microcontroller, a GPS receiver, a cellular transceiver, a data modem, and other control circuits (see Figure 3). In this setup, the system sends the VIN and the position and user data over the cellular network via the modem. Current North American mayday systems use the Advanced Mobile Phone System (AMPS), which is an analog-based cellular network. These analog mayday systems must use the voice channel to transmit the data. GM's OnStar and Mercedes Benz's US version of TeleAid are typical examples of such systems.

Markets other than North America use digital-based GSM (Global System for Mobile Communications) cellular networks. Digital mayday onboard equipment is usually like that for an analog system (see Figure 3), except the digital system does not require a data modem for the cellu-

lar transceiver. For data transmission, certain systems might be able to use both the *Short Message Service* and circuit-switched data. Other systems might use SMS only. With SMS, the system can deliver the data without interrupting voice conversations. However, SMS has limited capacity (up to 140 characters) and cannot always guarantee instant message delivery, owing to its store-and-forward nature. Because of the advance of telecommunication systems, future telematics systems will gradually adopt GPRS (General Packet Radio Service), W-CDMA/UMTS (Wide-band Code Division Multiple Access/ Universal Mobile Telecommunications System), and CDMA2000 as their communications media. BMW's Mayday Phone, Mercedes-Benz's TeleAid, and Renault's Odysline are typical examples that use GSM cellular networks for communication.

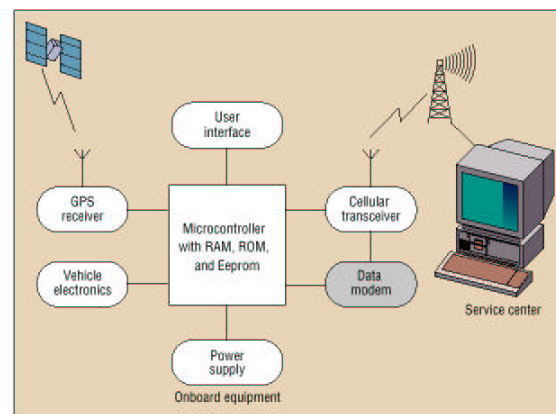


Figure 3: A basic telematics system. An analog system requires a data modem (shown in gray) for the cellular transceiver; a digital system does not.

Integrating communication and location devices

In current mayday systems, the location device and communication device are separate items integrated into one package. Generally, the cellular phone, its transceiver, and the location device are permanently attached to the vehicle. This will soon change as new mobile phones incorporate location determination in the handset. The US Federal Communications Commission requested manufacturers to begin selling and activating location-capable handsets no later than 1 October 2001. Telecommunication standards organizations have already developed specifications for a variety of location methods, such as Assisted GPS, Time of Arrival (TOA), Time Difference of Arrival (TDOA), and Cell ID. Eventually, the location and communication devices will become

a single unit.

Standards

The telematics market's growth has posed many challenges. Owing to the large customer base for personal-communications products, there are and will be many different bearer services (telecommunications services that let users transfer information over the air), including AMPS, GSM, GPRS, cdmaOne, TDMA (Time Division Multiple Access), W-CDMA, and CDMA2000. Despite the involvement of many highly visible organizations and the clear advantages of open, flexible, and evolving standards over proprietary ones, there are no widely accepted telematics standards. Currently, at least four standards are available for protocols between in-vehicle systems and content providers: the Application Communication Protocol, Air Interface Specification, Global Automotive Telematics Standards, and the Motorola Emergency Messaging System. ACP works with a variety of cellular networks, such as GSM, CDMA, TDMA, GPRS, PDC (Personal Digital Cellular), iDEN (integrated Digital Enhanced Network), and AMPS. AIF is a proprietary protocol for OnStar systems. GATS is for GSM networks. MEMS is a protocol for analog AMPS networks. Table 1 compares ACP, GATS, and MEMS. For standards activities and other relevant information, see *Evolving Telematics Systems and Standards*.

Protocol	ACP	GATS	MEMS
Bearer independence	Yes	No	No
Built-in security	Yes	Yes	No
Centralized route guidance	Yes	Yes	No
Concierge	Yes	Yes	Yes
E-commerce	Yes	No	No
Email	No	No	No
Internet	No	No	No
Mayday call	Yes	Yes	Yes
Multimedia	No	No	No
Points of interest	Yes	Yes	Yes
Remote vehicle control	Yes	No	Yes
Roadside assistance	Yes	Yes	Yes
Traffic information	Yes	Yes	No
Vehicle tracking	Yes	Yes	Yes
Weather	Yes	No	Yes

Table 1: A comparison of three open telematics protocols: the Application Communication Protocol, Global Automotive Telematics Standards, and the Motorola Emergency Messaging System.

A single-platform example

As an example of future telematics systems, consider one based on Motorola's mobileGT (see Figure 4). mobileGT aims to provide a hardware development platform that lets tier-one suppliers (those

primarily responsible for supplying goods directly to automotive manufacturers) create products based on Motorola's PowerPC microprocessor family.

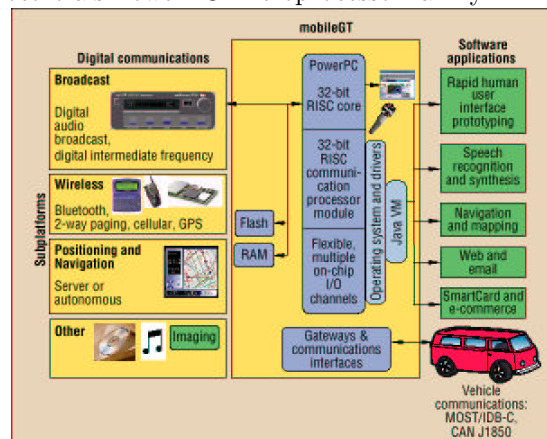


Figure 4: Motorola's mobileGT for telematics systems.

Installed in the automobile, mobileGT along with its supporting software will handle all the tasks that cellular phones, pagers, PDAs, Web servers, GPS receivers, and security systems now control. It will also offer an audio entertainment system enabled for digital-audio broadcast and CD-quality sound. Through natural speech recognition, a simple voice command will initiate an emergency telephone call or summon roadside assistance. Without drivers having to take their hands off the wheel, the system will help them find the nearest gas station, hotel, or ATM machine. Embedded software modules, such as a digital map database, route planning, and route guidance, will achieve these tasks.⁴ If all the major functions are fully activated, the system will let both driver and passengers check email, consult a personal calendar, and review vehicle maintenance schedules. When the vehicle is due for an oil change or new air filter, the car dealership will be able to simply send a reminder through the system.

In certain circumstances, the platform's software can be a part of the iRadio Telematics System software. This software provides a higher-level applications framework for automotive manufacturers, service providers, wireless carriers, and third parties to create services for the telematics market. However, both mobileGT and iRadio can be used independently as well. For example, Motorola's navigation server, part of the iRadio navigation application, together with Trafficmaster's real-time, traffic flow data create the Trafficmaster Smartnav service. Smartnav delivers turn-by-turn routing instruction and dynamic route guidance through many device types, from cellular telephones to fully embedded telematics

units.

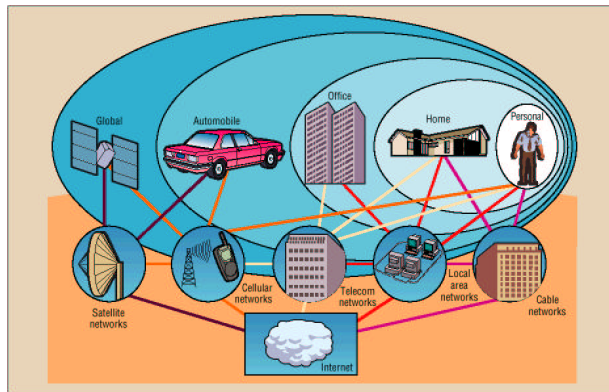


Figure 5: *The connected society.*

As the mobileGT example shows, future telematics systems will be offered in a single platform and will include many customized services such as information and entertainment (or infotainment, for short) and wireless Web connection. These systems will be an integral part of a connected society (see Figure 5).

The Internet will play the key role of providing a backbone for data delivery. A global backbone with countless local access points will give the mobile community easy access to vast amounts of information services not previously available. Not only the automobile, home, and office but even the person will become an access point. All these wired and wireless connections and technology advances will make our cars safe and fun to drive. They will also make our transportation systems operate more safely and efficiently, with less congestion, pollution, and other environmental impact.

Acknowledgments

I thank John Emrich and Rick Noens for their helpful comments on Table 1. Thanks also go to Lee Callaway, Chris Dewitt, Emad Isaac, Tim Van-Goethem, Sherry White, and the Intelligent Systems staff for their constructive comments on the other part of the article.

References

1. In-Car Telematics Terminals Market 2000 2007, Strategy Analytics, London, Dec. 2001.
2. U.S. Telematics Marketplace, Strategis Group, Washington, D.C., Nov. 2000.
3. Yilin Zhao, Vehicle Navigation and Information Systems, Encyclopedia of Electrical and Electronics Eng., vol. 23, John G. Webster, ed., John Wiley & Sons, New York, 1999, pp. 106 118.
4. Yilin Zhao, Vehicle Location and Navigation Systems, Artech House, Norwood, Mass., 1997. Translated and published in Chinese, Publishing House of Electronic Industry, Beijing, 1999.
5. ATX Technologies Reports 94 Percent of Its Telematics Subscribers Renew Service, ATX Technologies, Dallas, Aug. 2000; http://www.atxtechnologies.com/news/pr_94per.asp (current Dec. 2001).
6. Yilin Zhao, Efficient and Reliable Data Transmission for Cellular-and-GPS-Based Mayday Systems, Proc. IEEE Intelligent Transportation Systems Conf., IEEE Press, Piscataway, N.J., 1997, pp. 555–559.
7. Yilin Zhao, Mobile Phone Location Determination and Its Impact on Intelligence Transportation Systems, IEEE Trans. Intelligent Transportation Systems, vol. 1, no. 1, Mar. 2000, pp. 55 64.
8. Application Communication Protocol Application Layer Message Set Definition, v3.2, Telematics Communications Group, Motorola, Elk Grove Village, Ill., Mar. 2001.
9. OnStar Air Interface Specification, v2.6, General Motors Corp. and Delco Electronics Corp., Kokomo, Ind., Mar. 2000.
10. Traffic and Traveler Information (TTI) TTI Messages via Cellular Networks, ENV ISO 14821, European Committee for Standardization and International Organization for Standardization, Brussels, Apr. 2001. Available for members of the Telematics Forum (www.telematicsforum.com) and National Standards Organizations.
11. MEMS Interface Control Document, v6.3.5, Telematics Communications Group, Motorola, Elk Grove Village, Ill., June 2000.
12. D. Rogers et al., Evolving Telematics Systems and Standards, tech. report 2000-01-0814, Soc. of Automotive Engineers, Warrendale, Pa., Mar. 2000.



Report on ITS Council Administrative Committee Meeting

by Charles J. Herget

The Administrative Committee of the Council met on February 14, 2002, at the Wyndham Buttes Resort in Tempe, AZ, USA.

Election of Officers

Election of officers for 2003 was held. As a result of the election, the officers for 2003 will be:

- Charles Herget, President
- Paul Kostek, VP Conferences
- William Scherer, VP Finance
- Hideki Hashimoto, VP Publications
- Emily Sopensky, Secretary
- Ichiro Masaki, VP Technical Activities, subject to approval of an amendment to the Council constitution.

Daniel J. Dailey will be the Immediate Past President.

Elevation of Chair of Technical Activities to Vice President

Presently, the Council has a Committee on Technical Activities; however, the chair of that committee does not hold the status of a Vice President. An amendment to the Constitution of the Council would be required to elevate the position of the chair to a Vice President. The AdCom approved a motion requesting the Constitution and Bylaws Committee to make proposed revisions to the Constitution and take the necessary action required to seek approval.

Council Conferences and Symposia

The Vice President for Conferences provided the following schedule of upcoming conferences (ITSC: ITS Conference) and symposia (IV: Symposium on Intelligent Vehicles):

IV 2002	Versailles	June 18-20
ITSC 2002	Singapore	September 3-6
IV 2003	Columbus, Ohio	May 15-17 or 18
ITSC 2003	Shanghai	October 8-10
IV 2004	Parma, Italy	June 15-18
ITSC 2004	Northern Virginia	October





Periodical Review and Recent Publication Activities

by Yilin Zhao

On February 14 of this year, IEEE TAB Periodical Committee held a meeting to review our transactions and newsletter. Committee members, our editors, VP for publications, and other officers attended the meeting. Dr. Chip White and Dr. Alberto Broggi presented their reports respectively. For transactions, eight issues have been published. We planned to implement an electronic submission and review process by the end of this year. For newsletter, it is published three times per year and distributed to more than 10,000 readers. The revised review report has been submitted to the Committee recently. We expect that the report will be accepted by the TAB.

Due to our advertisement efforts, ERTICO published our transactions information on their newsletter. ITS Japan distributed our transactions information to their members. Furthermore, per our request, IEEE has assigned a part-time staff to investigate how to use IEEE database wisely to attract more subscribers. In addition, we also submitted five non-IEEE ITS publications to the IEEE Sales and Marketing Department so they can conduct a study of our non-member periodical prices versus those of our competitors.



Calendar of Council Events

by Charles J. Herget

Next Meetings are scheduled as follows:

ITS Executive Committee Meetings:

June 17, 2002	Versailles, France
	during the IEEE Intelligent Vehicles Symposium 2002
September 2, 2002 (am)	Singapore
	during IEEE ITSC 2002

ITS Council Meetings:

September 2, 2002 (pm)	Singapore
	during IEEE ITSC 2002

Call for Participation: IEEE ITSC 2002, Sept 3-6, Singapore

by Der-Horng Lee

The IEEE 5th International Conference on Intelligent Transportation Systems will be held in Suntec Singapore International Convention and Exhibition Center (the so-called Suntec City, www.suntecsingapore.com) from September 3-6, 2002.

The IEEE ITSC2002 has received more than 200 submissions from 26 countries and areas. All the submissions are being reviewed by the Technical Program Committee. Notification of acceptance will due on 15 May.

Information about registration and accommodation will be soon available online at www.itvs.eng.nus.edu.sg/itsc2002

Those who are interested to offer tutorial and workshop should contact Professor Der-Horng Lee (email: dhl@nus.edu.sg) no later than 31 May with a description and outline of tutorial/workshop to be offered.

Any inquiry regarding IEEE ITSC2002 should direct to conference secretary:

Professor Der-Horng Lee
Department of Civil Engineering, National University of Singapore
BLK E1A #07-16, 1 Engineering Drive 2
Singapore 117576
+65-6874-2131 +65-6779-1635 (Fax)
dhl@nus.edu.sg

Put your commercial Ad on the IEEE ITSC Newsletter...
...and be seen by over 10,000 readers worldwide

Rates:

Full color page, any position:.....400 USD

1/2 color page, any position:.....300 USD

1/4 color page, any position:.....200 USD

Full color page, specific position:...600 USD

1/2 color page, specific position:....500 USD

1/4 color page, specific position:....400 USD



Report on IEEE Trans. on Intelligent Transportation Systems

by Chelsea C. White

IEEE Transactions on Intelligent Transportation Systems

Editor's Report, 18 April 2002

As of 1 January 2002, the Editor of the IEEE Transactions on ITS became a professor at the Georgia Institute of Technology. His new address information is as follows:

Chelsea C. White III
ISyE Professor of Transportation and Logistics
School of Industrial & Systems Engineering (ISyE)
Georgia Institute of Technology
765 Ferst Avenue
Atlanta, Georgia 30332-0205 U.S.A.
PHONE 404 894 0235 FAX 404 894 2301
EMAIL: cwhite@isye.gatech.edu

Vol. 3, No. 1, March 2002, was late in going to press due to the logistics of making the transition to Georgia. This issue is a special issue composed of the best papers presented at the ITSC and IV 2000. We would like to thank Professors Alberto Broggi, Petros Ioannou and Shoichi Washino for their work as guest editors of the issue.

The March issue contains a book review of Introduction to Transportation Systems by Joseph Sussman, Reviewed by Prof. John Collura. Though this will not be a regular feature in each issue, we will be publishing book reviews when there are special books of interest to the ITS community. Authors who wish to submit reviews of books should contact the editor prior to submitting a review.

Prof. Katsushi Ikeuchi is making progress on a special issue of papers presented at IV 2001 in the area of Intelligent Control and Sensing in IV. He plans an issue of 5-6 papers with a 50page- budget. We hope to publish that issue later this year.

Prof. Shoichi Washino would like to propose a special issue from the ITS World Congress but at present the page budget is a limitation.

Prof. Angela Di Febbraro of DAUIN - Politecnico di Torino has submitted a proposal for a special issue on the "Discrete Event Systems in Transportation."

Given the interest in special issues and in accordance with the original plan, we have increased the page budget for 2002 to 360 pages.

We would like to thank everyone in advance for his or her patience with us during this very busy time of transition. We will do everything in our power to make the move as quickly and smoothly as possible so that there will be as little interruption in the editorial process as possible. However, we hope you will understand that it has been a very hectic few months for us. Therefore, a few glitches may be expected. Please call problems to our attention so that we can correct them as soon as time allows.

IEEE Trans. on Intelligent Transportation Systems - Index

by Jerri White

Vol.3, No.1, March 2002

Special Issue presenting papers from the Intelligent Transportation Systems Conference 2000 and Intelligent Vehicles Symposium 2000.

- **Conflict Resolution Problems for Air Traffic Management Systems Solved with Mixed Integer Programming**, by L. Pallottino, E. Feron, and A. Bicchi.

Abstract: This paper considers the problem of solving conflicts arising among several aircraft that are assumed to move in a shared airspace. Aircraft can not get closer to each other than a given safety distance in order to avoid possible conflicts between different airplanes. For such system of multiple aircraft, we consider the path planning problem among given waypoints avoiding all possible conflicts. In particular we are interested in optimal paths, i.e. we want to minimize the total flight time. We propose two different formulations of the multi-aircraft conflict avoidance problem as a mixed-integer linear program: in the first case only velocity changes are admissible maneuvers, in the second one only heading angle changes are allowed. Due to the linear formulation of the two problems, solutions may be obtained quickly with standard optimization software, allowing our approach to be implemented in real time.

- **Design, Simulation, and Evaluation of Automated Container Terminals**, by C.-I. Liu, H. Julia, and P. A. Ioannou.

Abstract: Due to the booming in world trade, port authorities are looking into ways of making existing facilities more efficient. One way to improve efficiency, increase capacity and meet future demand is to use advanced technologies and automation in order to speed up terminal operations. In this paper, we design, analyze and evaluate four different automated container terminal (ACT) concepts. These concepts include automated container terminals based on the use of automated guidance vehicles (AGVs), a linear motor conveyance system (LMCS), an overhead grid rail system (GR) and a high-rise automated storage and retrieval structure (AS/RS). We use future demand scenarios to design the characteristics of each terminal in terms of configuration, equipment and operations. A microscopic simulation model is developed and used to simulate each terminal system for the same operational scenario and evaluate its performance. A cost model is used to evaluate the cost associated with each terminal concept. Our results indicate that automation could improve the performance of conventional terminals substantially and at a much lower cost. Among the four concepts considered the one based on automated guidance vehicles is found to be the most effective in terms of performance and cost.

- **Quintic G^2 -splines for the Iterative Steering of Vision-based Autonomous Vehicles**, by A. Piazza, C. Guarino Lo Bianco, M. Bertozzi, A. Fascioli, and A. Broggi.

Abstract: This paper presents a new motion planning primitive to be used for the iterative steering of vision-based autonomous vehicles. This primitive is a parameterized quintic spline, denoted as η -spline, that allows interpolating an arbitrary sequence of points with overall second order geometric (G^2 -) continuity. Issues such as completeness, minimality, regularity, symmetry, and flexibility of these G^2 -splines are addressed in the exposition. The development of the new primitive is tightly connected to the inversion control of nonholonomic car-like vehicles. The paper also exposes a supervisory strategy for iterative steering that integrates feedback vision data processing with the feedforward inversion control.

- **Detection and Classification of Vehicles**, by S. Gupte, O. Masoud and N. Papanikolopoulos.



Abstract: This paper presents algorithms for vision-based detection and classification of vehicles in monocular image sequences of traffic scenes recorded by a stationary camera. Processing is done at three levels: raw images, region level and vehicle level. Vehicles are modeled as rectangular patches with certain dynamic behavior. The proposed method is based on the establishment of correspondences between regions and vehicles, as the vehicles move through the image sequence. Experimental results from highway scenes are provided which demonstrate the effectiveness of the method. We also briefly describe an interactive camera calibration tool that we have developed for recovering the camera parameters using features in the image selected by the user.

- **EMS-Vision: A Perceptual System for Autonomous Vehicles**, by R. Gregor, M. Lutzeler, M. Pellkofer, K.-H. Siedersberger, and E. D. Dickmanns

Abstract: The paper gives a survey on the new **Expectation-based Multi-focal Saccadic Vision (EMS-vision)** system for autonomous vehicle guidance developed at the “Universität der Bundeswehr München” (UBM). EMS-vision is the 3rd generation dynamic vision system following the 4D-approach. Its core element is a new camera arrangement, mounted on a high bandwidth pan-tilt head for active gaze control. Central knowledge representation and a hierarchical system architecture allow efficient activation and control of behavioral capabilities for perception and action. The system has been implemented on commercial off-the-shelf (COTS) hardware components in both UBM test vehicles VaMoRs and VaMP. Results from autonomous turn-off maneuvers, performed on army proving grounds, are discussed.

- **Feasibility Study on a Highly Mobile Microwave-band Broadband Telecommunication System**, by H. Harada and M. Fujise.

Abstract: A prototype of a wireless transmission system has been developed that can transmit multimedia-information data at a maximum rate of 4.608 Mbps in the 5.2 GHz carrier frequency band. It is based on a multicode transmission scheme that uses cyclic extended-and-shifted M-sequences and is designed for applications such as intelligent transport systems (ITS) and future broadband mobile communication systems. The proposed scheme is highly robust against high-speed multipath fading. The transmission performance of the prototype system was measured in field trials at an outdoor ITS experimental course. The real-time data-transmission rate between the base and mobile stations was 4.608 Mbps at a vehicle speed of 80 km/h.

- **Adaptations of the A* Algorithm for the Computation of Fastest Paths in Deterministic Discrete-time Dynamic Networks**, by I. Chabini and S. Lan

Abstract: This paper extends the A* methodology to shortest path problems in dynamic networks, in which arc travel times are time dependent. We present efficient adaptations of the A* algorithm for computing fastest (minimum travel time) paths from one origin node to one destination node, for one as well as multiple departure times at the origin node, in a class of dynamic networks the link travel times of which satisfy the first-in first-out property. We summarize useful properties of dynamic networks and develop improved lower bounds on minimum travel times. These lower bounds are exploited in designing efficient adaptations of the A* algorithm to solve instances of the one-to-one dynamic fastest path problem. The developed algorithms are implemented and their computational performance is analyzed experimentally. The performance of the computer implementations of the adaptations of the A* algorithm are compared to a dynamic adaptation of Dijkstra's algorithm, stopped when the destination node is selected. Comparative computational results obtained demonstrate that the algorithms of this paper are efficient. Using a network containing 3000 nodes, 10 000 links, and 100 time intervals, the dynamic adaptations of the A* led to a savings ratio of 11, in terms of number of nodes selected, and to a savings ratio of five in terms of computation time. The effect of the network size on the performance of these adaptations is also studied. It is shown that the computational savings in term of both the number of nodes selected and the computation time, increase with the size of the network topology.

- **A Robust Word Boundary Detection Algorithm for Variable Noise-level Environment in Cars**, by C.-T. Lin, J.-Y. Lin, and G.-D. Wu

Abstract: This paper discusses the problem of automatic word boundary detection in the presence of variable-level background noise in cars. Commonly used robust word boundary detection algorithms always assume that the background noise level is fixed and sets fixed thresholds to find the boundary of word signal. In fact, the background noise level in cars varies in the procedure of recording due to speed change and moving environment, and some thresholds should be tuned according to the variation of background noise level. This is the major reason that most robust word boundary detection algorithms cannot work well in the condition of variable background noise level. To solve this problem, we propose a minimum mel-scale frequency band (MiMSB) parameter which can estimate the varying background noise level in cars by adaptively choosing one band with minimum energy from the mel-scale frequency bank. With the MiMSB parameter, some preset thresholds used to find the boundary of word signal are no longer fixed in all the recording intervals. These thresholds will be tuned according to the MiMSB parameter. We also propose an enhanced time frequency (ETF) parameter by extending the time frequency (TF) parameter proposed by Junqua et al. from single band to multiband spectrum analysis, where the frequency bands help to make the distinction between speech signal and noise. The ETF parameter can extract useful frequency information by choosing some bands of the mel-scale frequency bank. Based on the MiMSB and ETF parameters, we finally propose a new robust algorithm for word boundary detection in variable noise-level environment. The new algorithm has been tested over a variety of noise conditions in cars and has been found to perform well not only under variable background noise level condition, but also under fixed background noise level condition. The new robust algorithm using the MiMSB and ETF parameters achieved higher recognition rate than the TF-based robust algorithm, which has been shown to outperform several commonly used algorithms, by about 5% in variable background noise level condition. It also reduced the recognition error rate due to endpoint detection to 25%, compared to an average of 34% obtained with the TF-based robust algorithm.



CFP: IEEE Transactions on Intelligent Transportation Systems

by Chelsea C. White



Call for Papers



IEEE Transactions on Intelligent Transportation Systems

The IEEE Intelligent Transportation Systems Council publishes the *IEEE Transactions on Intelligent Transportation Systems*. Professor Chip White of the Georgia Institute of Technology is the editor. Improved planning, design, management, and the control of future transportation systems requires conducting both basic and applied research to expand the knowledge base on transportation. The *IEEE Transactions* focuses on the design, analysis, and control of information technology as it is applied to transportation systems. Topics to be considered include, but are not be limited to:

Imaging and Image Analysis	Communications
Reliability & Quality Assurance	Decision Systems
Technology Forecasting & Transfer	Man-Machine Interfaces
Signal Processing	Information Systems
Computers	Simulation
Standards	Control
Sensors	Systems

The intent of the IEEE Transactions on ITS is to serve as a forum for the technological aspects of information technology to transportation, thus providing researchers with an outlet for publication.

For further publication guidelines, contact the editor at cwhite@isye.gatech.edu or by calling 404-894-2307.

Please send **five (5)** copies of your manuscript for possible publication to:

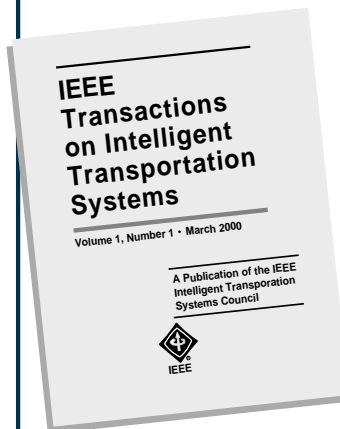
Chelsea C. White, III, Editor
 Georgia Freight Bureau Chaired Professor in Transportation & Logistics
 Georgia Institute of Technology
 School of Industrial and Systems Engineering
 765 Ferst Drive
 Atlanta, Georgia 30332-0205 U.S.A.
 phone 404-894-2307 fax 404-894-2301
cwhite@isye.gatech.edu

For more information, including a list of Associate Editors and their areas of expertise, see the IEEE ITSC web pages at www.ieee.org/itsc/trans.html.

1/1/02



Announcing a new way to access the latest research in intelligent transportation systems



A New Publication from the IEEE

The IEEE Council on Intelligent Transportation Systems has announced the publication of a new journal — **The IEEE Transactions On Intelligent Transportation Systems**. The journal will serve as a forum for the technological aspects of applications of information technology to transportation. Published quarterly, the **Transactions** presents quality, peer-reviewed research on a wide range of topics.

Meeting The Needs of Today's Transportation Engineer...

Improved planning, design, management and control of future transportation systems of the next century will require that fundamental, long-term research be conducted in order to expand the transportation knowledge base. Transportation systems professionals need to be educated to satisfy the evolving workplace requirements. To help address these needs, the IEEE Council on ITS has launched the **Transactions** to focus on the design, analysis and control of information technology as applied to transportation systems.

Transactions On Intelligent Transportation Systems

ISSN: 1524-9050**IEEE Pub ID:** 500-185**Subscription Rate** (beginning March 2002)**List:** \$330**Members:** \$25**Student Members:** \$14

Here are a few reasons why **Transactions** will be your essential resource for timely information in the field of intelligent transportation systems

Rapid dissemination of the latest research

With publication only 12 weeks after acceptance, subscribers will always have rapid access to the newest scientific and technical breakthroughs in the field.

Editorial support from a board of recognized experts

The respected professionals on the editorial board are committed to providing only the highest quality submissions and the critical information that engineers need most.

International circulation

Transactions will reach thousands of individuals, institutions and libraries. Authors will immediately benefit from the added attention of worldwide circulation, and readers will find significant contributions from some of the leading researchers and scientists worldwide.

For more information on this essential new publication,
see the ITS website at <http://www.ieee.org/its>

Contact IEEE by *phone* 800-678-4333 or *fax* 732-981-0225

BEGIN YOUR SUBSCRIPTION TODAY!**PRINT IEEE MEMBERSHIP NUMBER:** _____**IEEE Members paying with a credit card may pay by contacting:**

+1 800 678 4333 +1 732 981 0060 Fax +1 732 981 0225

or Mail to:

IEEE Member Services, P.O. Box 459, Piscataway, NJ 08855-0459 (USA)

Identifying Information:

First/Given Name: _____ Middle Initial: _____ Last/Family Name: _____

Address to which publication should be sent:

Address: _____

City: _____

State/Province: _____

Country: _____

Postal Code: _____

SOC/PUB ID:500-185 (*IEEE Transactions On Intelligent Transportation Systems*)**Price:**

List (in US\$): \$330 Members: \$25 Student Members: \$14 \$ _____

Applicable U.S. State Sales Tax for residents of DC, FL: \$ _____

Applicable Canadian GST or HST (7% GST/15% HST - Reg #12563 4188 RT): \$ _____

Total Amount Paid with Application: \$ _____

Method of Payment:☐ **Check, money order or bank draft enclosed.** (Make payable to IEEE)☐ American Express☐ MasterCard☐ Visa

Charge Card Number: _____

Cardholder's 5 Digit Zip Code: _____ Exp. Date (Mo/Yr): _____

Billing Address - USA only: _____

The issuer of the card identified on this item is authorized to pay the amount shown as TOTAL upon proper presentation. I promise to pay such TOTAL (together with any other charges due thereon) subject to and in accordance with the agreement governing the use of such a card.

Full signature of applicant if credit card payment_____
Date

For Office Use Only
Pay Full-Year (F) price until 28 Feb.; Pay Half-Year (H) price 1 Mar through 15 Aug.
Air freight prices are Full-Year only.



NON-COUNCIL ITS NEWS

Call for Volunteers

by Debra Schiff

Working Group P1616 – Motor Vehicle Event Data Recorders (MVEDRs)

The challenge during the second century of highway vehicles is to use advanced technology to improve safety. To this end, the IEEE Standards Association has inaugurated a new standards project, tasked with the development of standards for Motor Vehicle Event Data Recorders (MVEDRs), project P1616. The Working Group is now seeking technical expert volunteers to join the group.

Volunteers with expertise in the following areas are particularly encouraged to participate:

- In-car electronics & communications for passive and active safety
- Safety critical sensors, actuators & electronic control units
- On-board diagnostic modules with flexible bandwidth
- Collision free bus access modules
- Optical transmission solutions
- High-speed data communication protocols
- Global Positioning System (GPS) embedded chips
- Wireless communications via RF or IR
- Telematics
- Survivability

Without an independent, openly defined protocol, applications and operating systems cannot automatically determine the type of data to capture and share. The IEEE P1616 standard will provide a minimum data subset which will allow uniformity and enhance the value of crash data extensibility to provide for growth and product differentiation. Users of this standard may include those who specify, purchase, design, and build highway motor vehicles and their subsystems: They will benefit from a simplified process of integrating diagnostic information from multiple subsystem suppliers. The working group will identify, characterize and establish a minimum subset of data parameters that can be gathered and openly shared with the public, industry and government. Volunteers with expertise in the areas detailed above are invited to join this working group. A website devoted to this project is available at <http://grouper.ieee.org/groups/1616/home.htm>

To join the P1616 Working Group or for more information, contact:
Tom Kowalick, Chair at tkowalick@nc.rr.com or at 910-692-5209



A glimpse on the Web

by Alessandra Fascioli

This department is dedicated to catching a glimpse on the WWW trying to discover interesting ITS related Web resources. Reviewed sites range from research programs and projects, to software packages, databases, associations, non-profit companies, and more.

Every suggestion or contribution is welcome and should be addressed to fascal@ce.unipr.it.

- **ENTERPRISE Program** is a pooled-fund study with member agencies from North America and Europe. Its main purpose is to use the pooled resources of its members, private sector partners and the United States federal government to develop, evaluate and deploy ITS.

Link to ENTERPRISE Program site:

<http://enterprise.prog.org>

- **Transportation Research Group at the University of Southampton** carries on a number of activities in the ITS field. In their site you can find several research projects (Motorway Traffic Operations, TRG Instrumented Vehicle, CYBERCARS: Cybernetic Technologies for the Car in the City, PRIME: Prediction of Congestion And Incidents In Real Time, Virtual Mobility: Implications for accessibility, social exclusion and travel), the Young Professionals' Transport Visions Network, a useful collection of acronyms relating to transport, and links to other transportation research sites in the UK.

Link to University of Southampton's Transportation Research Group:

<http://www.trg.soton.ac.uk>

- **ETTM On The Web**, a site devoted to providing information on **Electronic Toll Collection and Traffic Management**.

Link to ETTM On The Web:

<http://www.ettm.com>

- **Mitretek Systems** is a non-profit company which develops and applies innovative technologies in the public interest. One of its mission areas is ITS.

Link to Mitretek Systems Intelligent Transportation Systems (ITS) Home Page:

<http://www.mitretek.org/its/index.html>

- **IEEE Intelligent Transportation System Data Registry** is a Web-based centralized data repository for all ITS data elements and concepts that have been formally specified and established for use with U.S. national ITS domains. It is designed for transportation professionals actively involved in the design and implementation of traffic signal systems, roadway signing and freeway surveillance and control systems.

Link to Intelligent Transportation System Data Registry entry point:

<http://standards.ieee.org/regauth/its/>



Upcoming Conferences, Workshops, or Symposia

by Massimo Bertozzi

This section lists upcoming ITS-related conferences, workshops, or exhibits. Contribution are welcome; please send announcements to itsconfs@ce.unipr.it.

International Symposium on Intelligent Transportation Systems in Emerging Economies

Washington, USA
May 6-8

EyeForAuto Telematics 2002

Detroit, USA
May 15-16

National Intelligent Vehicle Initiative Meeting

<http://www.sae.org/calendar/ivi/index.htm>
Washington, USA
May 15-16

Control and Applications (CA 2002)

Cancun, Mexico
May 20-22

ITS Technology Security Summit

Concord, USA
May 28-29

NDIA Intelligent Vehicles Symposium

Traverse city, USA
June 3-5

Future Car Congress 2002

Arlington, USA
June 3-5

Surface Transport Technologies for Sustainable Development

Valencia, Spain
June 4-6

5th Asia-Pacific ITS Forum

<http://itskorea.or.kr/eng/index.html>
Seoul, South Korea
July 2-5

15th International Symposium on Transportation and Traffic Theory

ISSTTT15@unisa.edu.au
Adelaide, South Australia
July 16-18

ITE 2002 Annual Meeting and Exhibit

<http://www.ite.org/AnnualMeeting/sixdays.asp>
Philadelphia, USA
August 4-7

Applications Of Advanced Technology In Transportation

<http://www.asce.org/conferences/aatt2002>
Cambridge, USA
August 5-7

Rural Advanced Technology & Transportation Systems Conference (CAATS & RAATS 2002)

<http://www.ruralits.org/callforpapers.htm>
Monterey, USA
September 10-13, **submission by April 30**

Operations Transport & Safety

<http://www.ite.org/meetcon/2002/Melbourne.pdf>
Melbourne, Australia
September 12-13

E-Safety, IT Solutions For Safety And Security In Intelligent Transport

Lyon, France
September 16-18

Engineering of Intelligent Systems

Malaga, Spain
September 24

IEEE Semiannual Vehicular Technology Conference (VTC-2002 (fall))

<http://www.fallvtc2002.org/cfp.htm>
Vancouver, Canada
September 24-29

Intelligent Systems and Control (ISC 2002)

Tsukuba, Japan
October 1-4, **submission by April 30**

International Exhibition for Intelligent Traffic Systems, Public Design and Parking

Beijing, China
November 13-15

7th International Conference on Control, Automation, Robotics and Vision

<http://www.ntu.edu.sg/eee/icarcv>
Singapore
December 2-5, **submission by April 30**

IEEE International Workshop on Computer Architectures for Machine Perception

<http://web.cacs.louisiana.edu/camp2002>
Powai, India
December 27-29, **submission by May 15**



CFP: IEEE Intelligent Systems Magazine

by Alberto Broggi

IEEE Intelligent Systems Magazine Call for Short Papers/Reports

IEEE Intelligent Systems Magazine has started a regular department on Intelligent Transportation Systems. This department (published in each issue) describes current trends and ideas for future systems/realizations/projects in the field of ITS.

People willing to share their ideas and disseminate the results of their projects are invited to prepare a short article (from 2 to 5 magazine pages) describing current trends, projects, research directions, and their experience in any field of Intelligent Transportation Systems.

For further publication guidelines and for suggestions, contact the editor at broggi@ce.unipr.it with a possible outline of the proposed article or browse www.ce.unipr.it/broggi/is-department for a quick look at past installations of this department.

Thanks to an agreement with the Magazine, published articles are reprinted in this Newsletter.



Intertraffic Innovation Award

by Harry Eskes

New initiatives and wealth of information in wide-ranging supporting programme

16TH INTERTRAFFIC AMSTERDAM REVEALS MANY NEW TRENDS TO DUTCH AND FOREIGN TRADE VISITORS

Intertraffic Amsterdam 2002, which will be held in Amsterdam RAI from 15 to 18 April, is the largest international trade exhibition for the design, management and maintenance of traffic and transport infrastructure. Over the years the exhibition has become the leading showcase for the industry and a place where supply and demand meet. In recent years it has spawned successful spin-offs elsewhere in the world. Nonetheless, the Amsterdam exhibition continues to set the tone, because where else than on Europe's busy roads do conditions generate faster and more frequent change. As the leading trade exhibition of its kind in the world Intertraffic Amsterdam 2002 has chosen 'Connecting Innovation to Infrastructure' as its pay-off. The competition for the new international Intertraffic Innovation Award gives extra meaning to this slogan.

Besides its thought-provoking pay-off Intertraffic Amsterdam 2002 also has an overall theme. This year it is 'accessibility management'. In fact, this covers all the subjects on the exhibition programme and links up perfectly, for example, with a topic such as urban development. This also happens to be the theme of this year's BouwRAI, another trade exhibition that is being held at the same time as Intertraffic. There is

a single admission arrangement for the two exhibitions. Intertraffic includes various national pavilions in which companies from the countries concerned have chosen to mount a joint showing of their technology to the Intertraffic trade visitors. These joint pavilions are from the United Kingdom, Spain, France, Italy, Switzerland and United States.

'Intertraffic goes international'

Over the years, Intertraffic has become increasingly international. The number of countries represented by both the visitors and the participating companies has grown steadily. Intertraffic in Amsterdam has evolved to the point where it has become a leading international exhibition. This is why the exhibition in Amsterdam remains the doyen of all Intertraffic exhibitions. Owing in part to its location (Europe) and its history (16 editions) 'Amsterdam' is always able to display state-of-the-art exhibits of the highest technological calibre. This is indeed the basic criterion that underlies the propagation of the Intertraffic concept throughout the world and has led to the formation of new Intertraffic exhibitions in other regions of the world, although they are mainly geared to local markets. Intertraffic exhibitions are now organised in South America (So Paulo, Brazil), Central America (Mexico City, Mexico), South-East Asia (Bangkok, Thailand) and Istanbul (for Turkey and the surrounding region).

This allows more people from regional markets the opportunity to visit an Intertraffic exhibition and see developments relevant to them. And although the problems of traffic and traffic congestion are to some extent comparable in the majority of countries each region has its own specific problems too. Although modern media such as the Internet have greatly intensified the dissemination of information and knowledge, exhibitors still like to take advantage of the formula of the regional Intertraffic exhibitions because it gives them the opportunity to meet their customers face to face in their own market.

Pioneering role for the Netherlands

The Netherlands has a leading position in traffic management. Visitors to Intertraffic Amsterdam 2002 will have the opportunity, as part of their exhibition visit, to see the Traffic Information Centre (TIC) in Utrecht, from which Dutch road users receive up-to-date round-the-clock information about traffic conditions. The Dutch road network is constantly monitored at the TIC by means of information from numerous lines and video screens. The system means that the Netherlands is at the cutting edge of the technology and serves as an example of how dynamic traffic management can be applied in practice. However, a factor of crucial importance to all new technology is that it should gain rapid universal acceptance. Examples are GSM, the Internet and e-mail. If these technologies are to be integrated into traffic and transport management, it is of the utmost importance that mobile phone access to the Internet becomes widespread without delay.

Many developments

Exhibitors have notified the organisers of many new products on display at the 2002 exhibition in Amsterdam. As a result of developments in day-to-day practice the market is being forced to deploy new technology and adopt new approaches ever faster. Another trend that is becoming evident is that the products of different manufacturers are being combined to solve a particular problem (integrated solutions). And although it is not so long ago that the first cellular-based 'Park & Go' systems were introduced, the next generation in the form of TPS (TeleParking System) is already just around the corner.

A pilot is now under way in the city of Gouda. Another new trend is the use of optical equipment rather than laser or radar for speed measurement.

Many interesting items will be on display at Intertraffic Amsterdam 2002. These range from parking management and tunnel monitoring to dynamic traffic management, marking systems and new pioneering solutions for different types of roads. Many exhibitors will be showing state-of-the-art street lighting, navigation systems and the possibilities for introducing ISA (Intelligent Speed Adaptation) through the use of in-car systems.

At present, Rijkswaterstaat (the Public Works and Water Management Department) is carrying out a wide-ranging pilot involving GPRS (General Packet Radio Service) as an intermediate phase between a GSM network and a UMTS (Universal Mobile Telecommunication System) network. Although this pilot is currently restricted to inland waterways vessels, it shows that developments are taking place in all kinds of

fields. In the case of the GPRS telecommunication network the user has a round-the-clock online connection and the mobile phone becomes a real extension of, say, the Internet.

Intertraffic Innovation Award

The Innovation Award will be presented for the first time during Intertraffic Amsterdam 2002. As a leading international trade exhibition, Intertraffic has always featured many launches of innovative products. This is why the organisers decided to introduce the new Intertraffic Innovation Award at the 2002 exhibition. They chose to have several categories to ensure that the chances for the entrants would be as fair as possible. Ultimately, the international trade jury has had to assess no fewer than 60 entries. Ten of these entries were short-listed and the winner will be announced during the second exhibition day (16 April) following a last round of voting by the members of the jury. The winner will then be presented with the award in the form of a handsome bronze statue made by the Dutch sculptress Martha Waijop.

The exhibitors short-listed in 2002 are: Holophane (from France), Sodi Scientifica (from Italy), Skidata (from Austria) and Prins Dokkum, Witteveen+Bos, Trinity, NILS, I.B. Kracht, Kaal Mastenfabriek and BAM NBM Infra (from the Netherlands). As sponsor of the 2002 Intertraffic Innovation Award, Rijkswaterstaat is making an important contribution to the election.

Intertraffic 365 days a year

The Internet portal Intertraffic.com was launched over 6 months ago and has already become a real focal point: a digital marketplace of and for the sector. This website gives companies the opportunity to participate in it. For those taking part in Intertraffic Amsterdam 2002 this possibility is an integral part of their exhibition participation.

All participants of Intertraffic.com can enter, besides their general company information, detailed information on the products and services they provide, including pictures.

Visitors can quickly find the information they need via the multitude of search possibilities. And of course the latest information on all forthcoming Intertraffic exhibitions can be found via Intertraffic.com.

Broad supporting programme

The strong international position of Intertraffic Amsterdam will be underlined still further by a broad programme of workshops, seminars and conferences. CROW will be holding various workshops on traffic and infrastructure during the exhibition. In addition, there will be national and international conferences. These will include the conferences of the Dutch Lighting Technology Institute (NSVV) on street lighting, the Royal Dutch Touring Club (ANWB) and the Dutch Institute for Road Safety Research (SWOV) and the renowned Institute of Transportation Engineers (ITE). Very important parts of this varied supporting programme are the two 2-day conferences organised by Europoint, namely Rail & Traffic and Tunnel & Traffic. Exhibitors can register to take part in breakfast seminars held with the embassies of Turkey, Mexico and Thailand (countries where regional Intertraffic exhibitions are held) on one of the exhibition days. Provision has also been made in the supporting programme for the visitors (in particular the foreign visitors) to take part in a cultural programme (Great Attractions of Holland) through ATP Online.

Rail and tunnel technology

Although it became politically correct in the Netherlands some years ago to accept the necessity of transport and mobility, commentators have pointed out that this is not sufficient: mobility must also be possible. And it is this which gives rise to a wide range of problems. Government bodies (most road managers are in the public sector) in particular are searching for technological support to resolve their problems. Large urban areas are finding it increasingly difficult to manage their rapidly growing traffic flows. Solutions are in many cases possible only in combination with a finely-meshed and efficient rail and light rail network, consisting of train, tram and metro. However, because of spatial constraints these systems must often be built partly underground. The 2002 Intertraffic Amsterdam will be the first to include suppliers in this field: solutions will be demonstrated at the 'Rail & Tunnel Square' and a survey of technical developments in (urban) rail and tunnel technology will be provided during two conferences - Rail & Traffic and Tunnel & Traffic.

BouwRAI 2002 being held simultaneously

In view of current trends such as the ever greater integration of building and infrastructure plans, it is entirely logical that Intertraffic and BouwRAI should be held simultaneously. Whereas Intertraffic focuses mainly on international trade visitors, BouwRAI is intended for the Dutch market. BouwRAI could briefly be described as the urban development exhibition. It focuses on such themes as the evolution towards a more demand-driven housing policy and its impact on those involved in residential development projects. This requires strategic alliances, new ways of thinking about building, and innovative products and technologies. The concept of the exhibition is designed to meet these needs, and many meetings on the subject will be held during the exhibition. Intertraffic and BouwRAI are being held on opposite sides of the RAI complex. As the admission ticket entitles visitors to attend both exhibitions, a joint exposition entitled 'Snelweghuis' (MotorwayHome) will be held in the passageway connecting the halls of the two exhibitions.

Dates and prices

Intertraffic Amsterdam 2002 will be held in the Europa complex of the Amsterdam RAI Exhibition Centre (halls 1-7) from 15 to 18 April 2002. The exhibition will be open from 11 a.m. to 7 p.m. on Monday 15, Tuesday 16 and Wednesday 17 April. The opening hours on Thursday 18 April will be from 11 a.m. to 5 p.m. The admission charge for exhibitors not in possession of an invitation card is E 20 per person, including VAT.

EU Conference on Sustainable Transport Research

by Donna Reay

Spain Hosts EU Conference on Sustainable Transport Research

A major conference on 'Surface Transport Technologies for Sustainable Development' is to take place 4-6 June 2002 in Valencia, Spain. Organised by the European Commission and supported by the Spanish Ministry of Science and Technology, the conference will address the critical technological and industrial development challenges facing the rail, road and maritime transport sectors to meet the goals of sustainable mobility in Europe.

Anna Birules, Spanish Minister of Science and Technology and current President of the EU Research Council; Philippe Busquin, EU Commissioner for Research; and Carlos Westendorp y Cabeza, Chairman of the Committee on Industry, External Trade, Research and Energy of the European Parliament, are among the officials that will open the Conference.

Environment, safety and competitiveness to top agenda

Research and the European transport industry face three main challenges: promoting a cleaner environment, improving transport safety, and maintaining European competitiveness. The growing need for transport, heightened world-wide environmental sensitivity and rising energy costs have intensified the scientific, technical and environmental role of the transport industry as a whole. Investment in technology will be essential to create the next generation of sustainable transport systems. The Conference will focus on developing a vision for the future and how this can be achieved in the context of European, national and industrial transport and research policies.

For more information go to:

http://europa.eu.int/comm/research/growth/valencia/index_en.html

or E-mail: growth@cec.eu.int (Subject: 'Re: Valencia')



CFP: NDIA 2nd Annual Intelligent Vehicle Systems Symposium

by Michael Del Rose

NDIA 2nd Annual Intelligent Vehicle Systems Symposium Event # 257 June 3 - 5 2002

Grand Traverse Resort and Spa
Traverse City (Acme), Michigan



Tank-automotive and
Armaments
Command (TACOM)



Tank Automotive
RDE Center
(TARDEC)

Jointly Sponsored by

Vetronics Technology Area & National Automotive Center

and the

Vehicle Technologies Section

of the

National Defense Industrial Association

www.ndia.org

2111 Wilson Boulevard, Suite 400
Arlington, VA 22201-3061



CALL FOR PARTICIPATION

INTRODUCTION

The Army is transitioning toward a lighter weight force structure that can initiate combat quickly and win decisively. This transformation force (Objective Force) must be more responsive, deployable, agile, versatile, lethal, survivable, and sustainable than the current force. Intelligent system technologies are critical to achieving these capabilities. Many of these technologies have application to Commercial Automotive products and are being pursued by the Automotive Industry. This conference will focus on military and commercial concepts and progress in implementing intelligent system technologies being pursued by the Military and Industry.

For further information visit the NDIA web site or contact:

US Army Tank-automotive and Armaments Command

AMSTA-TR-R(264) Don Sarna

6501 E. 11 Mile Road

Warren, MI 48397-5000

(586) 574-5005; or (248) 935-0702 (Cell)

Email: sarnad@tacom.army.mil

or dssarna@sprintmail.com

PAPER TOPICS (Solicited)

- Government and Industry Programs • Advanced Technology Demonstration's
- Software Architecture and API's • Speech Recognition
- Embedded Simulation • Audio Aids
- Crew Automation Aids • Route Planning
- Driving Aids • Mission Planning
- Navigation Aids • Technology Demonstrations
- Robotic Operations • Crash Avoidance
- Diagnostics/Prognostics • Automated Sensors
- Decision Aids • Hit Avoidance
- Cognitive Aids • Safety System Sensors
- Human Factors • Telematics Systems
- Electronics Architecture Structures, Standards, ICD's



Book Review

by Ichiro Masaki

"Intelligent Vehicle Technologies" is an excellent book to overview various aspects of the intelligent vehicle technologies. The book consists of 14 chapters ranging from sensors to control and a case study. Examples of chapters include machine vision systems, radio communication systems, global positioning systems, vehicle control systems, and adaptive cruise control systems. Each chapter is written by leading researchers and is filled with practical examples. 35 researchers contributed to this book, and about a half of the contributors are working at industries. Each chapter is in a self-contained style, and therefore the readers can start reading from any chapter. It is a good text book or an introduction book because it does not require any special pre-knowledge. It is not just an introduction book, however, and each chapter leads the readers to the cutting edge of the technologies.

Intelligent Vehicle Technologies

L. Vlacic

Griffith University, Brisbane, Australia

M. Parent

INRIA, France

F. Harashima

Tokyo Metropolitan Institute of Technology, Tokyo, Japan

Automotive Engineering Series

- Aimed specifically at the automotive industry
- Packed with practical examples and applications
- In-depth treatment written in a text book style (rather than a theoretical specialist text style)
- Presents ways to design and develop intelligent vehicle solutions

Written by the leading experts in the field – practising professionals from both industry and academia* – this timely reference provides "know-how" on the growing field of intelligent vehicle technologies, such as intelligent sensors, control, navigation and communication systems. Intelligent solutions such as in-car navigation devices and cruise control are already being introduced into modern vehicles, but manufacturers are now racing to develop systems such as 'smart' cruise control, on-vehicle driver information systems, collision avoidance systems, vision enhancement, vehicle-to-vehicle communication systems and roadworthiness diagnostics systems.

* Authors of the different chapters come from BMW of North America, CRL, Ministry of Post and Communication, Corning Incorporated, Daimler-Chrysler AG, Fujitsu Limited, Griffith University, INRIA, Motorola Inc., OKI Electric Industry Co., OMRON Corporation, Renault, Robert Bosch GmbH, Siemens AG, Tokyo Metropolitan Institute of Technology, University of Auckland, University of Bremen, University of Parma, University of Pavia

CONTENTS: Part 1: Introduction - The car of the future. Part 2: Intelligent vehicle sensor technologies - The CAN bus; Microcontrollers and microelectronic technology; Vehicle optical sensor; Towards intelligent automotive vision systems; From door to door - principles and applications of computer vision for driver assistant systems; Radio communication technologies for vehicle information systems; Global positioning technology in the intelligent transportation space. Part 3: Intelligent vehicle decision and control technologies - Adaptive control system techniques; Fuzzy control; Decisional architectures for motion autonomy; Brake modelling and control; ACC systems - overview and examples; Part 4: Case study - ARGO prototype vehicle

READERSHIP: Senior undergraduates in automotive engineering. Postgraduates in automotive engineering, automation, robotics or mobile communications. Practising engineers/analysts involved in intelligent control and automation, robotics and communications.

ISBN 0750650931 : 520pp : 244 x 172 mm : 154 photographs : 189 b/w line illustrations : Paperback : June 2001 : £35.00

