

IEEE VTS NEWS DIGEST

Companion to VTS News, Volume 46, Issue 4 November 1999

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Foreword

James Irvine, Editor

It is with great pleasure, and only a little concern over what have I may have let myself in for, that I take over editorship of the Vehicular Technology Society News. For the record, I am a lecturer in the Mobile Communications Group within the Communications Division at Strathclyde University in Glasgow, Scotland. My main interests lie in resource management and coding theory for mobile communications, but I also have a keen interest in railway communications. Some of my trepidation can be attributed to taken on this position in a society which can trace its history back fifty years, but everyone involved with the society has been very helpful, for which I am most grateful.

The VTS is a vibrant society at the heart of a technological revolution which will change the way we live and work. It runs two very successful major conferences which are the leading gatherings for researchers in the field, and sponsors a number of others. The Board of Governors is committed to updating VTS News so that it can serve its primary purpose of keeping members informed as to what is happening within the Society and the wider mobile and vehicular technology community.

To do this more effectively, we will be making some changes to VTS News. In a mutual society such as ours, services are provided by members, for members. Included in this issue is a questionnaire which I would encourage you to fill in to tell us what you want to see included. We

are looking for members to contribute articles. Working in one of the most interesting and varied branches of technology, I am sure that all of us could contribute something. We are looking for technology reports, conference reports, book reviews, information on chapters, ... - I leave the rest to your imagination. If you feel you can help, please drop me a line on j.m.irvine@ieee.org

In two months or so the clock will tick over to the 2000s. It is an exciting time to be working in vehicular technology. People want increased transportation - further, faster - while at the same time environmental and safety concerns force the use of more innovative solutions. The coming year will see the introduction of 3rd generation mobile radio systems, offering increased potential in particular for data communications. The new Acela trains in the North East bring the US into the era of the high speed train, while the Maglev technology being shown at VTC2000-Spring in Tokyo promises land transport at 550km/h. Our field covers a wide range of interconnected opportunities - imagine a vehicle management system which logs faults and then calls in to report the problem and perhaps even pick up a software fix in the process.

In the next issue we will take a more detailed look at the innovations which can be expected over the next few years in the different technology areas, but in the meantime may I wish you all the best for the coming year.

Transportation Systems

Harvey Glickenstein, Senior Editor

This is an abstract of the Transportation Systems column in the November 1999 VTS News. Please see the printed version for the full article.

- Amtrak has awarded a contract to Motorola for an automated fare collection system
- Baltimore's light rail system will eliminate all of its single track sections and be fully double track in about seven years according to the Maryland Mass Transit Administration (MTA)
- The U.S. Department of Transportation (DOT) announced financial assistance grants to eliminate hazards at both public and private rail-highway grade crossings on eight proposed high speed rail corridors
- The Board of Caltrain, the commuter rail line between San Jose and San Francisco, has approved a major upgrade program that includes full electrification of the 77-mile line.
- Santa Clara Valley Transportation Authority (VTA) expects to open its Tasman West Light Rail Extension on December 20, 1999.
- San Francisco's Metropolitan Transportation Commission (MTC) has awarded a contract to Motorola for a smart card system using a joint fare instrument for all of the public transportation systems in the Bay Area.
- Bucharest Metro has awarded a contract worth 3.6 million Euros to Adtranz Signal of Sweden for an Automatic Train Protection/Automatic Train Operation system for the Bucharest Metro Line 2.
- Thessaloniki, Greece is installing an automated rapid transit system.

- Danish State Railways has taken delivery of the largest 3 phase ac locomotive ever built by Siemens.
- BHP Iron Ore of Australia has operated the longest, heaviest train yet to operate with an Electronically Controlled Pneumatic Brake (ECP) Braking System. The train carried 37,500 tons on its 372-mile trip in Western Australia. It had five 4,000 hp GE Dash 8 locomotives and 240 cars. The train was over 8,000 feet long.
- CSX has awarded a contract to GE Harris to equip all of its road locomotives with a GPS tracking system.

Automotive Electronics

Bill Fleming, Senior Editor

This is an abstract of the Automotive Electronics column in the November 1999 VTS News. Please see the printed version for the full article.

- GM To Offer Four-Wheel Steering
- Double-e's out-produce me's?
- ITS Automated Highway Research Funding Cut
- Crash Avoidance Systems To Be Real-World Tested
- IVI (Intelligent Vehicle Initiative). Phase I Objectives
- ITS America Website
- Siemens Keyless Car Start
- Inattentive/Drowsy Driver Lane-Departure Warning
- Vehicle Satellite Phone Development
- J.D. Power Feature-Appeal Consumer Survey
- Headliner-Integrated Speakers
- The OnStar Multi-Media Approach

ITS Handbook 2000

Compiled by PIARC

Intelligent Transportation Systems (ITS) use advanced information and telecommunications technologies for solving the traffic congestion, safety, and environmental problems of surface transportation. ITS applications pioneered by Europe, Japan, and the United States during the late 1980s and early 1990s are now becoming an integral part of transportation system operations. Thus, in 1996, the World Road Association (also known as PIARC) established the Committee on Intelligent Transport (C16) to find ways of facilitating the spread of ITS benefits to other countries. The Committee is chaired by Dr. Christine M. Johnson, Director of ITS Joint Program Office of the U.S. Department of Transportation, and includes representatives from all parts of the world.

The PIARC Committee recognized early on that, although there was a growing body of literature on the experimental implementation of ITS in various parts of the world, little was available that brought together the

practical lessons that had been learned from the experimentation, and that there was a scarcity of introductory or guidance literature available for the transport manager who wanted to learn more about ITS solutions. Therefore the Committee decided to prepare a handbook that would introduce the transport manager to the concepts and share the practical experience gained by the early pioneers in ITS implementation.

The Committee carried out surveys and workshops with early implementers of ITS to compile handbook material. A number of case studies and country profiles were prepared and analyzed to help understand institutional issues, financing options, and various approaches that are being used for planning ITS implementation. Evaluation data was collected from around the world to present the best available information on the range of benefits and costs that are being experienced. In addition, experts in the areas of ITS architecture and standards were

contacted to provide an explanation of architecture principles and related issues that deserve the attention of transport managers.

The resulting handbook, "ITS Handbook 2000: A Report from the World Road Association (PIARC)," Kan Chen and John C. Miles, Editors, was published by Artech House this fall. In addition to a foreword, executive summary, and supporting appendices, it includes chapters with the following titles:

- What is ITS?
- How Does ITS Work?
- What Does ITS Do for Me?
- How Do I Plan and Finance ITS?
- How Do I Launch ITS?
- What about Transitional Countries?

The book is available from Artech House for \$83.00 (Order Book 00103, ISBN 0-89006-103-2). More information is available at www.artechhouse.com

Interested in ITS Standards?

The ITS Standards Coordinating Committee 32 (SCC32) is looking for VTS members interested in assisting in the development of interdisciplinary standards for intelligent transportation systems. SCC-32 Chair Bob Gottschalk says help is needed in several specialized areas, such as collision avoidance radar, and lightning protection practices and procedures. Multimodal rail standards are another area of interest, using, for example, Global Positioning System assists.

SCC32 holds monthly teleconferences to augment face-to-face meetings. For selected activities supported by the Federal Highway Administration, travel expenses incurred by volunteers who are state or federal employees can be covered.

More information about the IEEE ITS Council can be found at its website, <http://www.ewh.ieee.org/tc/its/> Bob Gottschalk welcomes your interest and consideration of this opportunity. He will answer queries by e-mail at r.l.gottschalk@ieee.org, or by phone at (850) 921-1069 weekdays or (850) 656-2582 evenings (Eastern Time).

IEEE Rail Transit Vehicle Interface Standards Committee

This article details the current work of the 12 working groups of the IEEE Rail Transit Vehicle Interface Standards Committee.

Workshop Report : ITS Standards for the Highway-Rail Intersection

On July 22-23 the Federal Railroad Administration (FRA), The United States Department of Transportation Intelligent Transportation Systems (ITS) Joint Program Office, and ITS America sponsored a workshop on "ITS Standards for the Highway-Rail Intersection." There were a number of general sessions, but the purpose of the workshop was to progress the development of ITS standards at highway-rail grade crossings. Cosponsors of the workshop were the American Association of State Highway and Transportation Officials (AASHTO), the American Public Transit Association, the American Short Line & Regional Railroad Association, the Association of American Railroads, the Brotherhood of Railroad Signalmen, The International Brotherhood of Electrical Workers, and The Railway Progress Institute. This article gives a full report on activities at the workshop.

VTS Web Site Domain

Tom Rubinstein, VTS Webmaster

To make it easier to remember VTS web site URLs, we have acquired the domain name vtsociety.org. To access the VTS main web site, just type <http://www.vtsociety.org/>

or <http://vtsociety.org/> Either will work. The actual location of the web page has not changed, so it is not necessary to change your bookmarks.

The IEEE VT-S Propagation Committee

David G. Michelson, Chair

The Propagation Committee of the IEEE Vehicular Technology Society has recently been reactivated with a mandate to help promote more effective exchange of information concerning propagation measurement and modeling for wireless communications system design. To this end, the committee has established both an Internet mailing list propagation-list@gweep.bc.ca and the beginnings of a web site/portal devoted to propagation

issues, <http://members.home.net/propagation/>. Eventually, the committee hopes to set up a CVS (concurrent versions system) server to promote Open Source development of propagation models and software tools. Participation in the mailing list, development of the web site/portal, and the Open Source development process is open to all interested members of the propagation community. The full article appears in the printed version of VTS News.

'Round the World with VTC'

VTC is achieving truly global coverage with its expansion to two conferences per year, one in Spring and one in Fall. This newsletter contains a report on VTC '99-Spring in Houston, a very successful conference with 500 papers.

As this newsletter closed to press, the 50th IEEE Vehicular Technology Conference, 'Gateway to 21st Century Communications Village' was underway in Amsterdam. As well as being the 50th VTC, VTC'99-Fall is the first of the biannual VTC conferences. Any doubts about the ability of the field to support another large technical conference will have been dispelled by the fact that the conference attracted a massive 895 submissions. From these submissions, a total of 404 papers and 228 posters were selected for presentation in 75 technical sessions. The conference included panel sessions looking at a broad range of issues from 3rd generation mobile, education and services, and each day started with a plenary session with speakers from the mobile and wireless multimedia industries. By the close of the conference, 942 delegates had registered to attend. A full report will appear in the next issue.

The next stop on the VTC world tour is Tokyo in Japan, where the 51st conference, VTC2000-Spring will held be from the 15th to the 18th of May. 800 papers were submitted by the abstract deadline, and given this level of response the Technical Programme Committee is considering increasing the number of papers presented from the planned 450. Currently, 68 sessions from seven tracks are planned: Antenna and Propagation; Wireless Access; Transmission Technology; Multimedia, Network, and Systems; Wireless Personal Communications Systems; Mobile Satellite; and Transportation. In addition, there will be seven panel sessions.

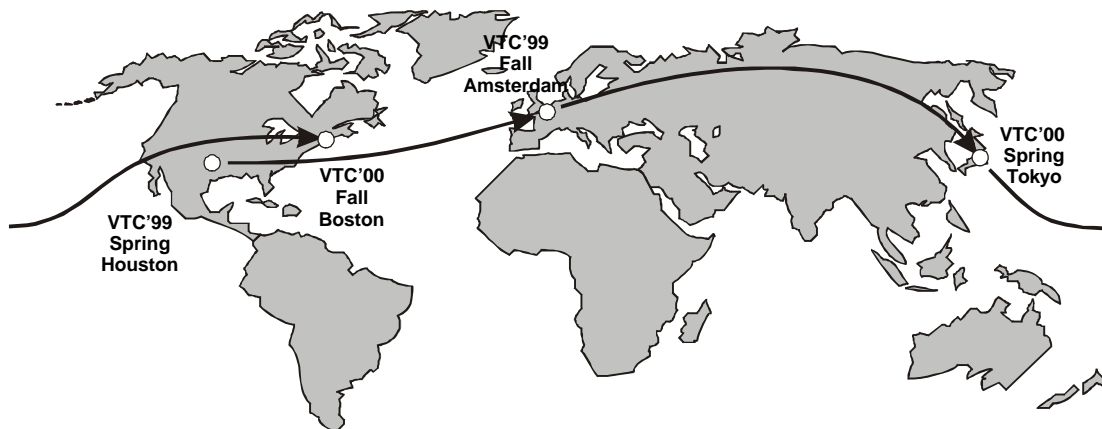
A number of exciting developments are taking place in Japan at the moment, which make a trip to the country very worthwhile, not least of which will be introduction of



Professor Ramjee Prasad, General Conference Chair of VTC'99-Fall, welcomes delegates to the conference.

3rd generation mobile radio and the 550km/h Maglev train. Rather than holding an exhibition, in an innovative development to show the vehicular technology Japan has to offer, the conference organisers have arranged technical tours. One of these tours will be to the Maglev test line to see the 550km/h "Superconducting Magnetically Levitated Linear Motor Car". A second tour will be to the 3rd generation mobile IMT-2000 Test System in the Yokosuka Area. Further details, and a registration form for the conference, can be found at <http://www.convention.co.jp/vtc2000s/>

VTC returns to North America next September when Boston plays host between the 24th and the 28th. Autumn is one of the best times to visit this beautiful part of the United States. The deadline for submission is the 15th of February 2000, which is not far off now. A Call for Papers for VTC2000-Fall can be found is included in this digest.



Report on VTC'99-Spring

Raquel Morera, University of Strathclyde

The 49th Vehicular Technology Conference (VTC '99-Spring), Moving Into A New Millennium, was held in Houston, Texas between May 16 and May 19 1999. It was a most successful conference, with 500 papers in 88

sessions spread over 9 technical tracks and 6 Poster sessions. One of the main themes of the conference was CDMA, with a large number of papers on aspects of this technology. This article reports on the conference.



Call For Papers
IEEE VTC2000 Fall
September 24-28, 2000,
World Trade Center, Boston, MA USA
<http://www.vtc2000.org>



The IEEE Semi Annual Vehicular Technology Conference

General Information

The VTC2000 Fall conference, to be held in Boston, seeks to capture and present the current state of the innovative and highly active mobile wireless industry. Mobile wireless Internet access and seamless international roaming for voice users are just two of the technical challenges to be addressed as worldwide penetration of wireless equipped devices continues to grow and users demand from wireless what they expect from wireline. As wireless data applications begin to enjoy commercial successes, the success of nascent technologies will depend heavily on efficient end-user applications offered on lower cost infrastructure. Broadband 3G wireless service platforms offer a significant leap in the types of information available to end mobile users, offering a myriad of possible new services with unique network design considerations. With these issues in mind, the following areas have been selected as the primary categories for paper submissions:

Technical Subject Area

§ **Antenna and Propagation (01)**

Adaptive Antennas and Arrays, Channel Measurement/Modeling/Prediction, Indoor Propagation

§ **Wireless Access (02)**

Multiple Access Technology, Spread Spectrum Technology, OFDM Techniques, Access Protocols, Channel Assignment, Spectrum Efficiency, Resource Allocation, 4G Methods

§ **Transmission Technology (03)**

Modulation/Demodulation, Source/Channel Coding, Interference Rejection, Equalization and Synchronization, Multiuser Detection, Software Radio, Transceiver Design

§ **Multimedia, Network & Systems (04)**

Mobile Multimedia Technology, Mobile Data/Computing/Navigation Networks, Wireless ATM, Bluetooth, IEEE 802.11, Wireless Packet Networks, Media Access Control, Enhanced Mobility IP

§ **Wireless Personal Communications Systems (05)**

IMT-2000, Broadband Mobile Communications Systems, Cellular Technology, Location Techniques, 2.5G and 3G System Performance, Radio Network Design, Power Control Techniques, SS7/AIN meets IP

§ **Mobile Satellite Communications (06)**

Mobile Satellite Communications, LEO/MEO/GEO Networks, Navigation

§ **Transportation (07)**

Intelligent Transportation/Vehicle Systems, Vehicular Electronics, Communication Interfaces for Vehicle Operators

§ **Applications (08)**

Wireless Internet Methods, Wireless E-Commerce, Software Agents, Hybrid Solutions

Time Table

Please submit an extended abstract
(maximum of two pages including text and figures)
Deadlines for submissions Feb. 15, 2000
Notification of accepted papers May 15, 2000
Full Papers Due July 10, 2000
Advance registration Aug. 15, 2000

For More Information Contact

Louis Kaczmarek
Arthur D. Little, Inc.
20/333 Acorn Park
Cambridge, MA 02140 USA
Phone: 617-498-6043
E-mail: papers@vtc2000.org

Tutorials

Proposals for tutorials should be submitted by March 15, 2000.

Electronic Submission at <http://www.vtc2000.org>

VTS News Questionnaire

Please answer as many questions as you wish to. Partially completed questionnaires are still very useful.

Please return forms to:

North America

Dr. Dennis Bodson
233 N. Columbus St.
Arlington, VA 22203

Elsewhere

Dr. James Irvine
Mobile Communications Group
EEE, Strathclyde University
George Street
Glasgow G1 1XW Scotland

Do you think that it is important that the VTS has a newsletter? Yes No

Do you think that the **primary** purpose of the VTS News should be:
to keep members informed about the VTS and its activities **or**
to keep members informed about developments in the area of vehicular technology

On a scale of 1 (least important) to 5 (most important), how important do you consider the following types of article to be

- Board of Governors' minutes _____
- Book reviews _____
- Call for papers _____
- Conference calendar _____
- Technological reports (recent developments) _____
- Technological reports (historical/review) _____
- Chapter reports _____
- Reports on VTS activities _____
- Reports on IEEE activities _____
- Government/regulatory development _____
- Conference reports _____
- Other (please write in)..... _____

Would you be interested in contributing to VTS News? Yes No

- If so, in what area/s
- Book reviews
 - Technological reports (recent developments)
 - Technological reports (historical/review)
 - Chapter reports
 - Reports on VTS activities
 - Reports on IEEE activities
 - Government/regulatory development
 - Conference reports
 - Other (please write in)
- How can we contact you?

If not, why not? (please write in)

What single thing would make the newsletter more useful for you?

Any other comments?

If you prefer, please feel free to submit free form comments to j.m.irvine@ieee.org

Thank you; your assistance is appreciated and will improve VTS News.

Conferences of Interest

The following table shows VT-06 sponsored and co-sponsored conferences as well as related conferences not sponsored by the Society. While every attempt was made to ensure accuracy, you should contact the respective conference committee to confirm date and location.

DATE	CONFERENCE	LOCATION	WEB PAGE
5-9 December 1999	Global Communications Conference GLOBECOM '99	Rio de Janeiro, Brazil	
5-8 January 2000	National Radio Science Meeting	Boulder, CO	http://cires.colorado.edu/ursi
20-25 March 2000	16 th ACES Symposium	Monterey, CA	http://aces.ee.olemiss.edu/cfp2000.htm
4-5 April 2000	10 th Int'l Road Transport Info. and Control Conference	London, United Kingdom	Email rtic2000@iee.org.uk
4-6 April 2000	Joint Rail Conference JRC '00	Newark NJ	http://www.ieee.org/organizations/society/vts/conf/jrccfp2000.html
9-14 April 2000	AP2000	Davos, CHE	http://www.estec.esa.nl/CONFANNOUN/AP2000
10-14 April 2000	NOMS '00	Honolulu, HI	http://www.noms.org/2000
7-12 May 2000	17 th World Telecommunications Congress and ISS2000	Birmingham, United Kingdom	http://www.wtc2000.org
15-18 May 2000	VTC2000-Spring	Tokyo Japan	http://www.convention.co.jp/vtc2000s
17-19 May 2000	AFCEA/IEEE EuroComm 2000	Munich, Germany	http://www.eurocomm.org
14-16 June 2000	2000 Virginia Tech Symp. on Wireless Personal Comms	Blacksburg, VA	http://www.mprg.ee.vt.edu
18-22 June 2000	Int'l Conference on Communications ICC '00	New Orleans LA	http://www.icc00.org
10-12 July 2000	Wireless '00	Calgary AB	http://www.cal.trlabs.ca/wireless
16-21 July 2000	AP-S International Symposium / Radio Science Meeting	Salt Lake City UT	http://www.caeme.elen.utah.edu/aps2000
22-25 August 2000	ISAP	Fukuoka, Japan	http://www.crl.go.jp/pub/ISAP2000/
10-13 September 2000	RAWCON '00	Denver CO	http://rawcon.org
18-21 September 2000	PIMRC '00	London, United Kingdom	http://www.pimrc2000.com
24-28 September 2000	VTC2000-Fall	Boston, MA	http://www.vtc2000.org
1-3 October 2000	3rd IEEE Conf. on Intelligent Trans. Sys. ITSC-2000	Dearborn, MI	http://www.ewh.ieee.org/tc/its/itsc2000/cfp-itsc-2000.html
4-5 October 2000	IV 2000 IEEE Intelligent Vehicles Symposium	Dearborn, MI	http://WWW.CE.UniPR.IT/iv2000/
16-18 October 2000	Convergence 2000	Dearborn, MI	http://www.convergence2000.org
6-8 November 2000	APWC '00	Waltham MA	http://www.eece.unm.edu/apwc2000
12-15 November 1999	WPMC-2000	Bangkok, Thailand	http://www.tc.ait.ac.th
17-20 December 2000	ICPWC '00	Hyderabad, India	http://www.citr.ece.uvic.ca/icpwc2000
Spring 2001	VTC '01/Spring,	Tel-Aviv, Israel	
Fall 2001	VTC '01/Fall	Atlantic City, NJ	http://www.vtc2001fall.com
Spring 2002	VTC '02/Spring	Region 9	
September 2002	VTC '02/Fall	Victoria, BC	
Spring 2003	VTC '03/Spring	Seoul, Korea	

This list is based upon the conference calendar at our web site, which is updated more frequently than this list can be. To access it go to the following URL: <http://www.vtsociety.org/>, then click on "Conference List" in the left frame.

Corrections and additions to this list are most welcome. We are particularly interested in adding listings for Automotive and Transportation conferences. Please send corrections and additions to Tom Rubinstein at t.rubinstein@ieee.org.