

IEEE VTS NEWS DIGEST

Connecting the Mobile World

Companion to VTS News, Volume 47, Issue 1 February 2000

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Short articles are available on-line. For longer articles, only the abstract is available on-line. VTS News is sent to all VTS members, and is included in the society subscription. Non-VTS members can subscribe at a cost of \$30 per year. For details of this, or for pricing information of single copies, contact the IEEE Customer Service on 1-800-678-IEEE (USA and Canada), 732-981-1393 (outside USA and Canada), and FAX: 732-981-0027

Foreword

James Irvine, Editor

Happy New Year! If you are reading this it means that the IEEE Y2K compliance procedures, along with those of the various Post Offices worldwide, have all worked and the VTS News has been dispatched successfully. Writing this in Scotland on the second of January, I am happy to report that the traffic lights did not fail, the utilities remained working, and I can even still connect to my ISP. Such has been the magnitude of the non-event when compared to the prophecies of doom that the media is now questioning all the money spent to ensure that the Hogmanay parties went undisturbed. We Scots know how to celebrate New Year!

Now that the clock has ticked over, it is possible to start looking at the silver linings to the Y2K cloud. The Y2K 'bug' has provoked a wide range of different attitudes, from the head-in-the-sand approach of hoping it will all go away to the overreaction of stocking up on food, heating oil and edible candles. I suspect that over the coming years Y2K will change in people's minds to one of those apocryphal stories told to young engineers (and computer scientists) to warn them of the dangers of complacency, and in particular of assuming that designs will be safely obsolete long before a critical date. If we design things to be as reliable as possible – and as engineers, that should be our aim – then it is incumbent on all of us to consider the

unexpected and plan for it. As Steve Oualline, author of *Practical C++ Programming*, asks, 'What would your program do ... if a cat walked across the keyboard, several times?' Y2K was arguably the least unpredictable problem to occur over the past 1000 years, but the 'bug' still occurred because engineers were designing for tomorrow, but not the day after tomorrow.

While those working in the transportation side will be well used to systems which last for 20, 30 or even 50 years, the mobile radio engineers may be feeling safer in the knowledge that there systems have a much shorter lifespan. The public seems to know this – last year, 13,000 mobiles were left in the London Underground and never picked up. VTC'99-Fall was full of discussion of 4th generation systems before the design of 3rd generation systems is even finished. However, when was the last time you started a design with a blank sheet of paper? Systems become more complex, intellectual property is reused, and the importance of designing for the unexpected becomes increasingly relevant.

There is another silver lining. As long as there is no such thing as bad publicity, the general population is now well aware that electronics is now ubiquitous to the point that almost everything, including transport, depends on it. Of course, that makes it more important to get things right...

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Washington News

Eric J. Schimmel

VTC2000-SPRING

On the 15th of May, VTC2000-Spring will open at the Hotel Pacific in Tokyo. This will be the first occasion that VTC has been held in Asia, but it could not come at a more appropriate time, with the advances being made in 3rd generation mobile communication systems. The theme of the conference is 'Shaping History Through Mobile Technologies', and Japan has been a key player in the global standardisation of 3G. The country also promises to be one of the first to implement the new technologies, with deployments starting this year for service from 2001. VTC2000-Spring is the first major mobile conference since the ITU decision on 3G standardisation, and it promises to be a useful opportunity to find out the way the industry is moving.

The conference has seven subject areas. They are

- **Antenna and Propagation** This area includes papers on Smart Antennas, Space-time Processing, Radio Channel Modeling and Prediction Tools.
- **Wireless Access** The papers in this area cover Multiple Access Technology, Spread Spectrum Technology, OFDM Technology, Access Protocols, and Channel Assignment.
- **Transmission Technology** This area includes various aspects of Transmitter and Receiver Design, including Modulation & Demodulation, Source & Channel Coding, Interference Rejection, Equalization and Synchronization, and Multiuser Detection, as well as Software Radio.
- **Multimedia, Network, and Systems** Mobile Multimedia Technology, Mobile Data Computing or Navigation Networks, and Wireless ATM.
- **Wireless Personal Communications Systems** IMT-2000, Broadband Mobile Communications Systems, Cellular Technology, and Location Techniques.
- **Mobile Satellite** Mobile Satellite Communications, LEO/MEO/GEO Networks, and Satellite Navigation.
- **Transportation** Intelligent Transportation and Vehicular Systems, as well as Vehicular Electronics.

Notwithstanding a large local contribution – 64 of the papers at VTC'99-Fall had Japanese authors or co-authors – the conference attracted 800 proposals from across the world. The 550 papers being presented have been chosen by the Technical Programme Committee on the basis of the seven programme subject areas to ensure a varied selection of high quality presentations. The seventy-six strong Technical Programme Committee is chaired by Professor Susumu Yoshida from Kyoto University. Mitsutoshi Hatori, from the National Centre for Science Information Systems in Japan, is General Chair of VTC2000-Spring.

In addition to the technical programme, the conference will be preceded by 15 tutorials. Also, 8 panels are planned. Tutorials and panels cover various technical subjects such as Wideband CDMA, High-Speed Wireless LAN, Packet Mobile Communications/TCP/IP over Mobile Radios, Smart Antennas, Software Radio, Multi-User Detection, High-Speed Digital Transmission Technology, Mobile Multimedia and ITS.

Two technical tours have been organised. The first is to a 3rd Generation Mobile IMT-2000 Test System in the Yokosuka area just south of Tokyo. The Yokosuka Research Park opened in 1996 as a centre for research and development in mobile radio technology. The Japanese W-CDMA 3rd generation system was combined with the similar European UTRA FDD system for standardisation as ITU-DS and is likely to be one of the first true 3rd generation systems deployed.

Other types of vehicular technology are included in the technical programme and the second tour will be to the Maglev test line to see the 550km/h "Superconducting Magnetically Levitated Vehicle". Again this is an area of technology where Japan leads the world, offering the prospect of future practical land transportation at 500 km/h. For those who are interested in an example of previous high speed train technology, the conference centre is only 11 minutes by train from Tokyo station, where high-speed Shinkansen trains can be seen in operation. These are still the fastest trains in the world, having faster schedule speeds from station to station than France's TGV. The Tokaido Shinkansen from Tokyo to Osaka opened more than 35 years ago on 1 October 1964, and even today only eight countries currently have high speed trains which exceed that original line's design speed of 210km/h.

The conference will be held in Le Meridien Pacific, Tokyo. The hotel boasts a total of 6 restaurants on its 30 floors, offering French and Chinese cuisine in addition to Japanese. The hotel is well served by transportation links, being only a minute's walk from Shinagawa railway station with services to central Tokyo, Narita and Haneda airports.

While Japan is some 1,500 miles long, it is only on average 130 miles wide. Its area is roughly one 25th of that of the United States of America, but in this space live over 125 million people, only a little less than half the population of the United States. The 12 million living in Tokyo make it one of the largest metropolises in the world, but only 50 miles to the west is the Kanto mountain range and the Chichibu-Tama National Park, and south of that is Mount Fuji, which rises over 3750m. May is a very good month to visit Tokyo, with little rain and a temperature averaging a comfortable 18°C. The attractiveness of the season is often expressed by quoting a famous Japanese poem by Sodo Yamaguchi:

*Our eyes see green leaves,
From mountains sing little cuckoos.
Eat first bonito!*

One aspect of touring Japan which can trap the unwary is the fact that although there are many signs in English, at least on the main transport corridors, the Japanese kanji or hiragana scripts are used universally. This can make finding your way about somewhat complex, unless you have taken the precaution of recording the kanji form of your destination to compare to station signs or for ticket machines.

VTC has established itself as *the* series of conferences on cellular radio technology, not only in terms of its technical programme, but in the number of attendees which it attracts. The split into two conferences per year has resulted in a pair of conferences, each of which is almost as

Future Automotive Electronics

Bill Fleming, Senior Editor

In a series of articles to appear throughout the year, we will be looking at the developments which can be expected in the various areas of VTS technology in the early years of the new millennium. In this first article in the series, Senior Editor Bill Fleming looks towards the future of Automotive Electronics. Subjects covered include:

1. On-board, fix-it-on-road, diagnostic systems
2. Smart "install and forget" sensors
3. Passive personalization and the convenience
4. Automotive chassis systems
5. Intelligent Highways
6. Automotive Powerplants

Electronics Harnesses Alternative Energy for Automobiles

In this article, George F McClure, Editor, Technology Policy Council discusses a joint venture to develop and produce hybrid electric vehicles which is about to bear fruit. The Partnership for a New Generation of Vehicles (PNGV) involves DOE and the Big Three automakers, Daimler Chrysler, Ford, and General Motors, working in tandem to develop a vehicle with triple the fuel efficiency of today's midsize cars but equal or better safety, performance, emissions, and price.

Chapter News & Meetings

Gaspar Messina, Senior Editor

Philadelphia, PA

The Land Transportation Division has held a varied series of monthly meetings over the past year.

On February 10, 1999, Mr. Andy Jones from Amtrak, gave a talk entitled 'AMTRAK's Electric Traction System on the North East Corridor'. Another Amtrak speaker, Mr. John Popoff, gave a presentation on the Electrification of AMTRAK's High Speed Rail Line Between New Haven and Boston on May 5, 1999.

ACSES on AMTRAK was the title of the March 10, 1999 presentation by Mr. Bob Glass, of RSD, and in April, Mr. Bob Glines of ALSTOM Signaling Inc., gave a talk on Integrating PTS & ITS to Improve Grade Crossing Performance.

PATCO's Bill Klein gave a tour of PATCO High Speed Line Control Center on June 2, 1999, and after the summer break, Richmond Frequency Converter Project on AMTRAK was presented on September 8, 1999 by Mr. Wolfgang Recker of Siemens. In October, Mr. Peter Allibone, of SYSTRA Consulting spoke on the New York East Side Access Project

Ottawa

At a series of meetings held jointly with Electron Devices, Microwave Theory & Techniques and Antennas & Propagation Societies in November 1998, a Training Video Course on RF Devices and IC's for Wireless Applications was presented. The speakers were Mr. Robert Broderson of U. C. Berkeley, Mr. Paul Davis and Mr. Y. K. Chen of Lucent Technologies, Dr. Masahiro Muraguchi of NTT, and Mr. Eric Strid, of Cascade Microtech, Inc. Attendance totaled 45.

More recently, a talk was given last November by Kim Lochhead, from the Geodetic Survey Division of Geomatics Canada, which is part of Natural Resources Canada on the Global Positioning System in Canada & D-GPS in real time for various applications. Kim listed many DGPS services offered in Canada - and some worldwide, too. One particular usage is with the Canadian MSAT system providing the D-GPS information; this service is being expanded and will be offered Canada-wide soon. There was much discussion on the topic and the evening was considered very worthwhile.

The Ottawa Chapter VTS runs 2-4 meetings per year, and similar D-GPS lectures are planned for the future.

SE Michigan

Professor Khalil Najafi gave a talk last September on MEMS For Automotive Electronics. MEMS - Micro Electro Mechanical Systems - are miniature, multifunctional, systems consisting of sensors, Actuators, and Electronics which allow the formation of physical as well as electronic devices and use many of the standard silicon IC fabrication techniques. The talk covered mainstream micromachining technologies, how to integrate sensors and actuators with electronics, automotive applications devices (accelerometers, gyroscopes, anti-skid braking control, etc) and a review of current developments.

As well as being Professor of Electrical Engineering at the University of Michigan, Professor Najafi is also Director of their Solid-State Electronic Laboratory. He has an extensive and varied association with the IEEE including Associate Editor of Smart Sensors for the Journal of Micromechanics, and has been a member of the technical program committee for MEMS conference 1995-2000.

Automotive Electronics

Bill Fleming, Senior Editor

This is an abstract of the Automotive Electronics column in the February 2000 VTS News. Please see the printed version for the full article.

100-Year Scenarios

Robert Lutz, former Chrysler automotive chief executive officer, now chairman of battery maker Exide Corp., wrote a futurist article. He offered the following three possible scenarios of what might happen during the 21st century.

1. **Global Environmentalists Prevail**
2. **We Warm To a Warmer Planet**
3. **Cybertravel Makes Autos**

Advanced Uses for Navigation Information

Growing Consumer Interest in Onboard Navigation

The Consumers Electronics Association conducted a telephone survey of 1000 randomly selected car owners [3]. The survey showed that:

1. Emergency distress signals were the most popular smart car feature, with 64-percent of respondents expressing some level of interest in the service.
2. Ability to find the shortest route was second most popular (57 percent).
3. On-demand vehicle traffic information – jumping up from sixth place in 1995 – was now third (55 percent).
4. Step-by-step navigation directions were fourth (50 percent).
5. Ability to monitor vehicle mechanical condition and servicing needs was fifth (40 percent).

Professional Activities

Frank Lord, Senior Editor

In this article, Frank Lord discusses the recent IEEE-USA Professional Development Conference in Dallas, and how to write a letter to an editor.

VTC2000-Fall Call for Papers

A reminder that the deadline for submissions for VTC2000-Fall, which will be held in Boston from 24-28 September 2000, is the 15th of February. A full Call for Papers was published in the last VTS News. Submissions are invited in the areas of Antennas and Propagation, Wireless Access, Transmission Technology, Multimedia,

Transportation Systems

Harvey Glickenstein, Senior Editor

This is an abstract of the Transportation Systems column in the February 2000 VTS News. Please see the printed version for the full article.

- The Rail Transit Vehicle Interface Standards Committee met at New Jersey Transit's offices in Newark New Jersey on November 9-10, 1999.
- A conference on High Speed Ground Transportation will be held in Philadelphia in May.
- Salt Lake City opened its TRAX light rail line between Sandy and Delta Center in downtown Salt Lake City on December 4, 1999.
- MTA New York City Transit (NYCT) has chosen the leader team for their Communications Based Train Control (CBTC) Project on the Canarsie Line.
- Singapore's Land Transportation Authority opened its fully automated light rail line in November 1999
- Bombardier has received an order for 21 100% low floor streetcars from the city of Linz, Austria
- The Hudson Bergen Light Rail Line will open its first section this spring
- The Newark City Subway will be replacing their Presidents Conference Committee (PCC) streetcars in May
- Ottawa, Ontario is proposing a 5-mile light rail line
- Amtrak and the Commonwealth of Pennsylvania have entered into a \$140 million high-speed rail funding agreement.
- Voters in San Francisco passed two major propositions concerning public transportation in November
- Denver overwhelmingly approved expansion of its light rail system in November.
- Seattle's Sound Transit has approved the route for their new 21-mile light rail line.
- A new rail tunnel under the Alps between France and Italy is being studied.

Network and Systems, Wireless Personal Communications Systems, Mobile Satellite Communications, Transportation and Applications. Papers should be submitted electronically to <http://www.vtc2000.org>, where further details can be obtained.

VTS News

VTS Board Elections

The recent ballot for members of the VTS Board of Governors has resulted in three new Board members. These are John T. Gilseman, Deputy Director, Office of Multilateral Affairs International Communications and Information Policy at the US Department of State, Anil T. Kripalani, Senior Vice President, Standards Planning and International Administration at Qualcomm Inc., and James A. Worsham, Jr., from BellSouth Science and Technology.

Three existing Board members, William C Y Lee, Jyun-Cheng Chen and Eric Schimmel retired from the Board and did not seek re-election. Eric Schimmel remains in the appointed position of Vice President Mobile Radio. The two remaining Board members who we seeking re-election were both successful. They are J. R. Cruz, who is Editor of the Transactions on Vehicular Technology, and Tom Rubinstein, who is VTS Webmaster and is also responsible for New Member Liaison and Conference Site Selection. All the Board members elected this year will serve until the end of 2002.

VTS Society Speaker Program

The VTS runs a Society Speaker Program open to any IEEE entity in need of a society speaker. The scheme is co-ordinated by Gaspar Messina (whose address is given on Page 2). To request a speaker, either contact him or the speaker directly. A subsidy for speaker travel/accommodation expenses is available from Society. This

requires advance approval. The following speakers are available.

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Transit Controls
Computer Training
Multi-Media Training

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Adaptive antenna arrays for
CDMA systems
Wireless communications and
the Global Village

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Radio communications histo-
rian and pioneer. Inventor of
military radio in WW-II, and
developer of personal wireless
communication devices.

VTS News Questionnaire

Many thanks to all the members who have completed the VTS News Questionnaire which was included in the last issue. The closing date for return is the 15th of March 2000, and results will be included in the next issue. If you haven't completed it yet, you can fill it out on the web and save the cost of a stamp. Follow the link from the VTS News section of the VTS web site <http://www.vtsociety.org>.

CONVERGENCE Fellowship

The IEEE Vehicular Technology Society (VTS) has announced that the biannual competition for the CONVERGENCE Fellowship in Transportation Electronics is in progress. This fellowship, which has a stipend of \$12,000, is provided by IEEE VTS and the CONVERGENCE Transportation Electronics Association.

The fellowship is for one year of full-time graduate studies in electrical or electronics engineering at an engineering school of recognized standing, located in the United States or Canada. Recipients are selected by a committee on the basis of the candidate's potential to contribute to the profession of electrical and/or electronics engineering, and with preference for studies involving transportation electronics.

To be eligible, the student must have received a bachelor's degree in electrical engineering from a university or college of recognized standing. Preference will be given to applicants about to begin their first year of graduate studies in electrical engineering.

Recipients of this fellowship may not hold or receive other fellowships for the same academic year. The fellowship may be supplemented with grants to cover tuition, fees, and other expenses, and assistantships, which are directly related to the graduate studies. Thus,

recipients must pursue full-time graduate studies in electrical and/or electronics engineering, and evidence of satisfactory academic performance is required.

Although not a prerequisite, it would be helpful if test scores were provided by the Educational Testing Service for any applicant who has taken the Graduate Record Examinations. Scores should be addressed to me, at the address listed above. A certified transcript of academic performance is required.

Further information and application forms may be obtained at the IEEE Vehicular Technology website at www.vtsociety.org. You should click on "CONVERGENCE Fellowship in Transportation Electronics."

The completed application and letters of recommendation should reach Prof. Robert E. Fenton, whose address is given below, by March 15, 2000. The fellowship award will be made as soon thereafter as possible.

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VTS Awards

Ray Trott, Awards Chairman

On Tuesday, May 18, 1999, the Annual Awards Luncheon was held at VTC 99 in Houston, TX.

The VTS recognizes those who contribute to & support VTS in an exceptionally worthy manner. There are several awards and fellowships that VTS considers in expressing its appreciation to members of the Society. Although all of these awards are considered, not all are awarded annually. These awards also have differing prizes: Plaques, Certificates and/or money.

At the luncheon, the following awards were presented:

1998 Neal Shepherd Memorial Best Propagation Paper Award This is to recognize the best paper relating to Propagation published in the *Transactions on Vehicular Technology*.

The award was presented to Matthias Pätzold, Ulrich Killat, Frank Laue, & Yingchun Li, "On the Statistical Properties of Deterministic Simulation Models for Mobile Fading Channels", February, 1998 VTS Transactions. The prize was a certificate and \$125 for each of the authors.

VTS 1998 Best Automotive Electronics Paper Award This is to recognize the best paper relating to Automotive Electronics published in the *Transactions on Vehicular Technology*.

The award was presented to V. Anand Sankaran, Daryl Sitar, M. Abul Masrur, "Can an AC (Alternating Current) Electrical System Replace the Present DC System in the Automobile?", August, 1998 VTS Transactions. The prize was a certificate and \$166.66 for each of the authors.

1998 Jack Neubauer Memorial Best System Paper Award This is to recognize the best paper relating to Systems Engineering published in the *Transactions on Vehicular Technology*.

The award was presented to Erik Dahlman, Per Beming, Jens Knutsson, Fredrik Ovesjö, Magnus Persson, & Christiaan Roobol, "WCDMA - The Radio Interface for Future Multimedia Communications", November, 1998 VTS Transactions. The prize was a certificate and \$83.33 for each of the authors.

1998 VTS Best Land Transportation Paper Award This is to recognize the best paper relating to Land Transportation published in the *Transactions on Vehicular Technology*.

The award was presented to Takeo Ishikawa, "Development of a Road Traffic Simulator", August, 1998 VTS Transactions. The prize was a certificate and \$500 for the author.

Outstanding Service Awards These awards are given to members to recognize outstanding service to the Society. Prizes for these awards were plaques.

Members of the VTC98 Committee - For outstanding performance in the planning and execution of the 49th VTC, 19-22 May 1998, Ottawa, Canada.

Linda Sue Boehmer - For outstanding long-term service and leadership to the Society.

Samuel A. Leslie - For outstanding long-term service and leadership to the Society.

Chapter of the Year Award This award is presented to recognize the outstanding Chapter of the Vehicular Technology Society. To be eligible, a Chapter must submit to IEEE Headquarters the meeting attendance report form, L-31. The award is a plaque.

The 1998 winner was for the second year in a row, the Tokyo VTS Chapter.

The Daniel A. Noble Fellowship Award This award is given to a student pursuing graduate-level study in Vehicular Technology with a preference to the field of Vehicular Communications. Along with a certificate, the awardee receives \$7,500 which is funded partially by Motorola, Inc. and partially by VTS.

The 1999 Winner was Mr. Thomas P. Krauss who is pursuing a Ph.D. in Electrical Engineering at Purdue University.

The following award was presented at the Fall VTC 99 in Amsterdam.

Stuart Meyer Memorial Award This is an award to recognize those members of the Vehicular Technology Society who have both served their Society and also have contributed to the development of radio technology and science in an outstanding and exemplary manner. The prize is a plaque and a stipend of \$2,500.

This award was presented to Sven-Olof Öhrvik, Sweden, head of the consulting company, RAKONSULT.

Mr. Öhrvik was one of the leaders in the development of cellular radio in Europe. He was the head of Research at Ericsson Radio from 1963 to 1985, where he pioneered data communications over land mobile radio. He started research of digital cellular radio in the late 70's, more than a decade before the first digital cellular radio system (GSM) was implemented in 1991. He was a Professor at Lund University from 1986 to 1993.

He has served VTS very well. He was the Chairman of the Swedish Chapter from 1985 to 1987, the Director of Region 8 in the late 80's and was heavily involved in organizing Eurocon '88 and VTC 94 in Stockholm.

IMT-2000 - Just hold on a minute!

John Bush for the University of Strathclyde considers the recent ITU agreement to work towards five standards of

third generation mobile communications, and discusses its feasibility and the social, political or economical factors.

Mobile Radio

This is an abstract of the Mobile Radio column in the February 2000 VTS News. Please see the printed version for the full article.

ITU Agreed Radio Interface Standards for 3G The ITU has formally agreed five different radio interface standards for IMT-2000 harmonisation. At a meeting in Helsinki from 25 October to 5 November 1999, the ITU approved IMT-DS (Direct Spread), IMT-MC (Multi-Carrier), IMT-TC (Time Carrier), IMT-SC (Single Carrier) and IMT-FT (Frequency Time).

Project 25 approves TETRA Standard for Private Mobile Radio in the US Project 25 has approved the TETRA standard, supported by the European Telecommunications Standards Institute (ETSI) and the TETRA Memorandum of Understanding (MoU), as a phase 2 option for future applications in the Public Safety Domain in the United States.

2nd TETRA world congress takes place in Amsterdam More than 550 delegates attended the 2nd TETRA World Congress held in Amsterdam from 15–18 November 1999.

8th October 1999 VTS Board of Governors Meeting Report

Previous practice has been to include the Board of Governors' meeting minutes in the VTS News. However, since the minutes need to be officially approved at the following meeting, there is a long lead time before publication. Also, the minutes can sometimes be very cryptic without their attached papers, which cannot be included in the VTS News due to their size. Therefore it was decided to replace the minutes with a Meeting Report from the October meeting. The report should not be taken as being a full record of the meeting – for this you will have to consult the minutes which will continue to be available on the web site after they have been approved. However, the report will include the main points discussed and the decisions taken.

A meeting of the VTS Board of Governors' took place in Boston on the 8th of October. Present at the meeting were Kent Johnson, VTS President, who was in the Chair, along with Board of Governor members Dennis Bodson, J. R. Cruz, Bob Fenton, Bob French, Mel Lewis, Bob Mazzola, Tom Rubinstein, Eric Schimmel, Essam Sourour and Ray Trott. James Irvine (Editor of VTS News) and Stu Lipoff (Chair of VTC2000-Fall) were also present.

After approval of the agenda and the minutes of the last meeting, Kent Johnson, President, made his report. He began by covering initiatives from IEEE headquarters that have been topics of considerable interest at recent TAB meetings. A new financial model has been proposed by headquarters and modified as a result of suggestions from TAB. A trial run is scheduled for the 2000 budgets. Branding has also been discussed within TAB. It is still very controversial with most members of TAB having strong feelings that the current IEEE symbol (the kite) should be maintained as is. Kent Johnson also noted the presentation of the Stewart Meyer award to Sven-Olof Öhrvik at VTC'99-Fall in Amsterdam. The presentation was made by Jan Uddenfeldt who did an excellent job. Also reported was the work that had been done to close out several conferences at headquarters. Jim Worsham has been very helpful in that process and the President expressed his appreciation for Jim's work. Nominations for the IEEE millennium medals were discussed, and it was agreed that a small committee would generate a list of candidates to submit to headquarters.

Mel Lewis gave his report as VTS Conference Coordinator. The books of VTC'98 have been closed with a surplus.

VTC'99-Spring had a good turnout and technical programme. The conference made a surplus but it is not yet clear what the amount is, and final accounts are awaited. VTC'99-Fall attracted about 950 registrations to a well organised conference held jointly with WPMC. The social programme was more involved than usual for VTC, but it was explained that this is normal for a European conference, and anything less would be noticed in this context.

Turning to future conferences, planning for VTC2000-Spring is well underway. 810 papers were submitted, with a very similar breakdown of originating country to VTC'99-Fall. The conference had been planned on the assumption that attendance would split between the conferences, whereas in fact the combined attendance between both conferences had risen to the order of 2000. Additional hotel accommodation is being investigated. 440 papers can be accepted, and questions were raised as to whether this would lead to the rejection of high quality papers. While it was suggested that an increased rejection rate may not be a problem, the prevailing view amongst those of the Board who had just completed reviews for the conference was that the standard of submission was high, and that quality was not being diluted. The Organising Committee will be asked if there is any scope to increase the number of papers presented, but given the time to the conference, this may not be possible.

VTC'01-Spring is being organised in Israel. The Israel chapter chair, Reuven Meidan, is also general chair of the conference. They are currently negotiating proposals from two conference companies. The venue will be the David Intercontinental Hotel, on the beach between Tel Aviv and Jaffa, which is the largest hotel meeting space in Israel.

The organising committee for VTC'01-Fall has signed a contract with the Sheraton in Atlantic City. The main organising positions have been filled.

The proposal for VTC'02-Spring for San Diego has been dropped. Another option, Guadalajara, is being pursued but a detailed proposal has not been submitted so this may have to be dropped as well.

A budget for VTC'02-Fall (Vancouver) is still awaited following the proposal agreed at the May Board meeting. However, an outline budget for VTC'03-Spring (Korea) has been received for the chair, Prof Jae Hong Lee. Two hotels have been identified as possible venues, and quotations will be sought.

Looking longer term, Los Angeles is being thought of for Fall 2003, with Oceania for Spring 2004.

Stu Lipoff, General Chair of VTC2000-Fall, gave a comprehensive presentation on plans for the conference, before a tour of the conference facilities in the hotel. Seven parallel tracks are proposed. The conference programme will accommodate a roughly similar number of papers to the Toyko conference, which re-opened the discussion on paper selection. J. R. Cruz argued that papers should be selected on merit, and the number in the conference adjusted to suit, rather than the other way round. There is some scope for increasing the number of papers by dividing the meeting rooms to provide further tracks, although there is a practical limit to this. Extending the conference was considered but it was felt that many people would then leave before the end. The problem of people submitting papers and registering, but then not attending to present them was raised. This removes space in the programme for other papers which could have been presented. Some conferences record this and blacklist presenters, while others have 'stand-by' presentations to fill gaps, but it was felt the latter would create a two-tier system, while the problem was not significant enough at present to consider the first option.

The proceedings will mainly be on CDROM. It was first suggested that no printed proceedings be produced, but 450 printed copies must be produced for the book broker programme. Some additional copies can be printed for sale. To supplement the CDROM for use at the conference, Stu Lipoff proposed a digest with abstracts, an idea which was widely welcomed. These abstracts will be given with the paper as part of the submission process, which will be completely electronic.

The meeting turned to the weighty issue of conference lunches. The award luncheon will be sit-down, but to keep the registration fee down the other lunches could be unbundled or for speed and cost-effectiveness, packed lunches could be provided.

The next agenda item was the VTS News. A new editor, Dr James Irvine, has been appointed, and proofs of the first issue since this appointment were distributed. James Irvine gave a short presentation on plans for future issues, and proposals for increased coverage of the Society's activities. It was agreed that a page count of about 24 pages per issue should be aimed for.

On some housekeeping matters, it was agreed that minutes should be circulated quickly to allow for them to be more widely published. However, as part of this discussion, it was agreed that it would be better to present a meeting report in the VTS News rather than a set of minutes since this can be produced immediately after the meeting without waiting for approval at the following meeting.

The last main item on the agenda was reports from individual Board members. **Harvey Glickenstein, VP Land Transportation** was not present at the meeting but circulated a written report on his work on Land Transportation. At the recent ITS workshop in Washington (reported in the VTS News in November 1999) a need was identified for a standards group to develop standards for the rail-highway grade crossing situation.

Dennis Bodson, Standards Committee Chairman, reported on standards work within the VTS. He had attended two IEEE-SA Standards Board meetings since the last Board Meeting. In the VT area, two standards on

Communication Based Train Control, and one on Rail Transit Vehicles, were approved at these meetings. Dennis Bodson noted that some VT standards had been mistakenly logged in the catalogue as ITS standards – this has now been corrected. It has also been suggested that VT standards be made available in a single package. The IEEE has agreed to this, but also wishes the same to be done for ITS standards. These will be made available either as separate VT or ITS bundles, or as a combined VT/ITS package.

The IEEE Industry Standards and Technology Organization (IEEE-ISTO) has requested that the VTS takes note of the publication of IEEE-ISTO 5001, 1999, and recognizes it as a significant contribution to the automotive industry. In addition, IEEE-ISTO, has requested that the VTS, if asked, would be willing to act as the sponsor for this standard through the IEEE-SA standards process. This was approved by the Board of Governors.

J. R. Cruz, Executive Vice President and Editor of Transactions on Vehicular Technology, reported that IEEE Transactions on Vehicular Technology had now joined Opera. Currently, issues back to 1996 are archived, but this would be extended back to 1988 by the end of the year. Staff of the Transactions are being re-organised to improve response time on paper submissions.

J. R. Cruz had also investigated the possibility of making all issues of the Transactions back to their beginning in 1952 available as a set of CDs. There are two issues: the first being the cost and the second being the fact that a complete set of transactions would be required to make the electronic master, and that this copy would be destroyed in the process. Depending on the number of CDs ordered, costs would be in the region of 50 to 100 thousand dollars. There was some doubt expressed as to the worth of such a set to members, since vehicular technology articles had a shorter shelf life than those of, for example, information theory, whose society had produced such an archive. Important early VT papers have been reprinted and so are available. It was agreed to try to assess member interest through an article in VTS News before taking any decision. An article on the inclusion of the Transactions in Opera was also agreed.

Bob Fenton, reported on the convergence scholarship. The application forms for this will be placed on the VTS web site.

Bob French, ITS Coordinator, reported on the formation of the ITS Council, which the VTS was instrumental in creating. Its first meeting had been held in Boston in June. It publishes an electronic newsletter, and the editor also writes a column in Electronics Systems magazine on ITS. Bob French was invited to write an overview for the first issue and will update this for an article in VTS News.

Mel Lewis, having reported on his conference responsibilities earlier in the meeting, discussed the VTS-sponsored distance learning course. Progress on the course has paused awaiting conversion of the first draft of the course, which has received favourable reports from reviewers, to HTML. The groundwork undertaken by the VTS was therefore not being used by the Society, although other IEEE societies were making use of it and were likely to have their courses in place more quickly. Mel Lewis will discuss the conversion of the course to HTML with the course author.

Bob Mazzola, Vice President Motor Vehicles and Convergence Conference Committee Representative, is preparing an article for VTS News on convergence. He suggested that it was time for another member survey, since the last one had been done many years ago but had formed an important role in strategic planning. The May issue of VTS News could provide a vehicle. This will be decided at the upcoming December meeting. The theme of that meeting will be the future identity of the VTS.

Tom Rubinstein, Webmaster and New Member Liaison, reported that he had sent follow up emails to the 1035 new members who received the welcome letter. He'd received 35 responses varying from 'thanks' to detailed suggestions for the Society.

Tom Rubinstein also reported that the web site had a new domain name, www.vtsociety.org, although subdirectories cannot be directly accessed using this address although the redirection vendor had promised that they would. He proposed implementing a previous decision to make VTS News available online. Discussion ensued about making such access public, as limiting access to VTS members would be difficult to arrange. It was agreed to publish the table of contents and abstracts on-line with open access.

Finally, he reported that he had received a request for a chat room on VTS matters. An issue here is security. He will raise the matter at an upcoming IEEE Webmaster's meeting and report back.

Eric Schimmel, Vice President Mobile Radio, reported that there were seven candidates for the five Board places. Three existing Board members, Jyun-Cheng Chen, William C. Y. Lee and Eric Schimmel himself, were not standing for re-election. Tom Rubinstein and J. R. Cruz were standing for re-election, along with John Gilsenan

(US State Department), Anil Kripalani (Qualcomm), James Worsham (Bell South), Sabah Towaij (Industry Canada) and Asrar Sheikh (Hong Kong Polytechnic). Ballots would be posted to members on the 25th of October for return by the 6th of December. The results would be available by the 10th of December. Eric Schimmel also reported on recent work by ITU on VTS related activities, and on the work of the IEEE Committee on Communications and Information Policy, which has focussed on creating a workshop on "US Telecommunications Infrastructure Over the Next Decade". Within ITU, work is beginning on contributions to the next Working Party 8A meeting at the end of February next year. EC is the Convener of the US delegation to WP8A. New areas of interest are topics such as Wireless Local Loop and Local Area Networks. Internet over Wireless. Adaptive Antennas and Software Defined Radios, and Fourth Generation Wireless.

Ray Trott, Awards Committee Chairman, reported that nominations were being sought for awards for 2000. He will circulate the Board. Award recipients can choose to receive their awards at either the Tokyo or Boston conferences.

A report was also received from David Michelson, VT-S Propagation Committee chair. He has submitted a report on the VT-S Propagation Committee to the VTS News. A proposal to lend the Society's technical sponsorship to propagation tutorials at upcoming VT conferences was approved.

Since there will be an election for the Board of Governors, another meeting is required in 1999. This will be held in Atlanta on the 13th of December 1999.



*From left to right :
Raymond Trott,
J. R. Cruz,
Robert Fenton,
Dennis Bodson,
Robert French,
Eric Schimmel,
Kent Johnson,
Essam Sourour,
Tom Rubinstein,
Robert Mazzola,
and Stuart Lipof*

CONVERGENCE 2000

International Congress on Transportation Electronics

Convergence 2000 will be held October 16-18, 2000 at the Hyatt Regency Hotel in Dearborn, Michigan. For over twenty-five years the Convergence Transportation Electronics Association (CTEA) has sponsored this premier automotive electronics conference. The IEEE Vehicular Technology Society continues to be a technical co-sponsor for this conference along with several other industry organizations. This conference has consistently brought together the leading technologists, engineers and executives from around the world.

The theme for Convergence 2000 is "Automotive Electronics: Delivering Technology's Promise". Conference

Chairman J. T. Battenberg III, Chairman, CEO and President of Delphi Automotive Systems, promises a thought-provoking global forum with over 100 technical exhibits and 12 sessions containing 70 technical papers. Over 5000 attendees are expected. Always one of the conference highlights is the industry reception and banquet and the featured speaker will be William Ford, Jr., Chairman of the Board, Ford Motor Company.

For further Convergence 2000 details including technical session descriptions and registration information, visit the website at www.convergence2000.org/index/html or contact Ms. Denny Freitag at Delphi Automotive in the

USA at 248-813-3085. Hotel reservations may be made by contacting the Hyatt Regency - Dearborn at 800-233-1234 or 313-593-1234.

The Convergence Transportation Electronics Fellowship Award will also be presented at Convergence 2000 by the IEEE Vehicular Technology Society. For further details please see the article on page 7.

Call for Papers

IV 2000 IEEE Intelligent Vehicles Symposium

The Ritz-Carlton Hotel, Dearborn, MI, USA
October 1-3, 2000

The IEEE Intelligent Transportation System Council (ITSC) is sponsoring a professional-level conference on basic research and present and future application for Intelligent Vehicles. Papers dealing with vehicle-centered intelligent systems are solicited.

This symposium is characterized by a single session format so that all the attendees remain in a single room for multilateral communications in an informal atmosphere. As another tradition, the meetings have enthusiastic participation from industry, as well as research centers and universities.

Program Topics: Driver Assistance Systems, System Architectures, Sensors, Navigation/Guidance Systems, Imaging and Vision Enhancement Vehicle Control, Information Systems, Human-machine Interfaces, Active Safety, Traffic Monitoring and Control Communications and Networks, CAN.

Paper Submission: Prospective authors are invited to submit a paper in electronic (Postscript) form by FTP at: <ftp://ftp.ce.unipr.it/iv2000> by **March 1, 2000** for peer review. Submitted papers must be no longer than six pages in IEEE two-column format, including figures and references. Papers exceeding this length limit may be rejected without review. The first page should include (1) the title of the paper, (2) the names of the authors, (3) the technical categories, and (4) the name, mailing address, telephone and fax number, and e-mail address of the contact author.

Paper submission should be followed by an e-mail to Alessandra Fascioli at fascal@ce.unipr.it specifying (1) authors' complete affiliation; (2) contact author's postal address, phone and fax numbers, and e-mail address; (3) title and topic of the paper and up to 5 keywords, and (4) name and length of the file uploaded to <ftp.ce.unipr.it>.

Papers will be reviewed for technical content, originality, completeness and clarity.

Deadlines:

Papers due for peer review **March 1, 2000**

Notification of acceptance **May 1, 2000**

Camera-ready copy for proceedings due **July 1, 2000**

Please refer frequently to the following websites for the most up-to-date information or contact the General Chair (Jim Rillings, jrilling@notes.gmr.com), the Program Chair (Alberto Broggi, broggi@ce.unipr.it), or see the IV-2000 Home Page at <http://www.ce.unipr.it/iv2000>

ITSC-2000 3rd Annual IEEE Conference on Intelligent Transportation Systems

The Ritz-Carlton Hotel, Dearborn, MI, USA
October 4-5, 2000

The IEEE Intelligent Transportation Systems Council (ITSC) is sponsoring a professional-level conference on basic research and on the applications of leading-edge advances in communications, computers, control and related electronics-based technologies to Intelligent Transportation Systems (ITS).

Program Topics: Sensors (infrastructure & vehicle-based), Communications (side area & vehicle-to- roadside), Simulation (continuous, discrete, real-time), Man-machine Interfaces (displays, artificial speech), Control (adaptive, fuzzy, cooperative neuro), Decision Systems (expert systems, intelligent agents), Systems (engineering, architecture, evaluation), Information Systems (databases, data fusion, security), Computers (hardware, software), Reliability & Quality Assurance, Navigation and Guidance System, Signal Processing, Technology Forecasting & Transfer, Imaging and Image Analysis, Vehicle Control, Standards, Traffic theory in ITS, Routing and Route Guidance, Transit applications and Air traffic control.

Paper Submission: Five copies of complete manuscripts must be submitted no later than **March 1, 2000** at the following address:

Prof. Petros A. Ioannou, PC Chair, ITSC-2000 Center for Advanced Transportation Technologies, University of Southern California 3740 McClintock Avenue, Suite 200B Los Angeles, CA 90089-2562, USA Tel: +1-213-740-4473, Fax: +1-213-740-4449, E-mail: ioannou@rcf.usc.edu

Submitted papers must be no longer than six pages in IEEE two-column format (US letter size), including figures and references. Papers exceeding this length limit may be rejected without review. The cover sheet should include (1) the title of the paper, (2) the names of the authors, (3) the technical categories, and (4) the name, mailing address, telephone and fax number, and e-mail address of the contact author. Details on the electronic paper submission can be found on

<http://www.ewh.ieee.org/tc/its/cfp-itsc-2000.html>

Notification of Acceptance is scheduled for **May 1, 2000**.

A single reduced rate registration option will be available for attendance at both IV2000 and ITSC2000 Conferences, as well as individual registrations. The same paper may not be submitted to both IV and ITSC conferences.

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
2-3 March 2000	IMT 2000 3G Wireless Technology Conference	Dallas, TX	http://witmail.hypermart.net/3G2000.htm
20-25 March 2000	16 th ACES Symposium	Monterey, CA	http://aces.ee.olemiss.edu/cfp2000.htm
26-31 March 2000	INFOCOM 2000	Tel-Aviv, Israel	http://www.cse.ucsc.edu/~rom/infocom2000/
27-29 March 2000	3G2000	London, United Kingdom	http://conferences.iee.org/3G2000/
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, Switzerland	http://www.estec.esa.nl/CONFANNOUN/AP2000
10-14 April 2000	NOMS '00	Honolulu, HI	http://www.noms.org/2000
17-19 April 2000	CSNDSP 2000	Bournemouth, United Kingdom	http://dec.bournemouth.ac.uk/CSNDSP2000/index.htm
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.trilabs.ca/wireless
10-13 July 2000	HF Radio 2000	London, United Kingdom	http://www.iee.org.uk/conf/HFRadio/
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	APWC2000	Waltham MA	http://www.eece.unm.edu/apwc2000
12-15 November 1999	WPMC-2000	Bangkok, Thailand	http://www.tc.ait.ac.th
27 November – 1 December 2000	Globecom 2000	San Francisco, CA	http://delson.org/si/gc00/
17-20 December 2000	ICPWC '00	Hyderbad, 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.