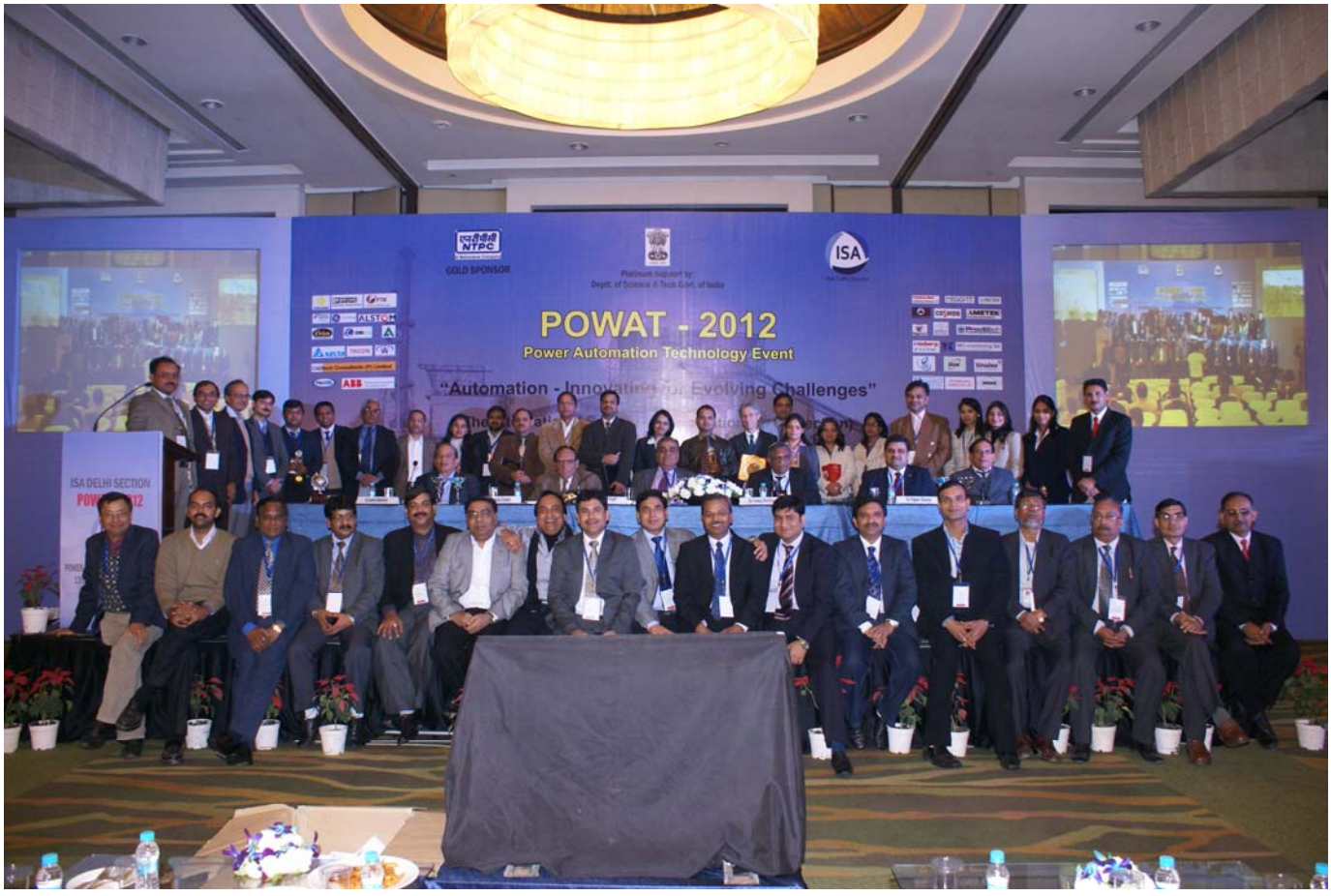
ISA Delhi Section

The International Society of Automation

ISA(D) NEWSLETTER

Volume 1-Issue III



ISA Delhi Section

The International Society of Automation

ASIA PACIFIC DISTRICT 14

ISA(D) NEWSLETTER

Volume 1-Issue III

From the Desk of President:

I am glad to release the third issue of the News letter of ISA Delhi Section before the members after grand success of Power Automation Technology Event (Conference and Exhibition) POWAT-2012 at Hotel "The Grand", Vasant Kunj-Phase-II, Nelson Mandela Road, New Delhi on 13th & 14th January 2012.

I thank all the dignitaries, participants, technical committee members, executive committee members and all others who supported ISA-D to make this Power Automation Technology Event a mega success.

I would also like to thank all sponsors, exhibitors, speakers and also compliment them for sharing their valuable technical knowhow with all our participants from various Power industries.

I complement Mr. Soumitra Bhattacharya and Mr. Manish Kumar for organizing the 1st Essay Competition by ISA-Delhi section on Power Industry. I am thankful to all the participants and congratulate all the winners.

I certainly wish that with the support of our active members, we can organize many more Technical Events in up-coming year.

I would like to complement Mr. Manish Kumar for his sincere efforts in bringing the third issue of this ISA-Delhi Newsletter.

This year had been very eventful for ISA Delhi Section. We have very satisfactory monthly meets for knowledge exchange and networking among automation fraternity. Our various leaders of ISA (D) executive committee team had worked very hard to bring before you big events, like PNID-2011 & POWAT-2012.It had been our continuous endeavor to provide value to our members .I personally like to thank each one of you for your cooperation and understanding during this year I also take this opportunity to thank all the seniors for their kind guidance and support through out the years. The section is going to be lead by another set of dynamic leaders for the next year. I wish the new executive committee, the very best for this year. I urge each one of you, to maintain your kind support and solidarity to our leaders to take our section the best in the world.

I take this opportunity to invite you all with family members for the Annual General Body meeting at Noida Golf Club on 28th April'2012 and election of new Executive Committee members for year 2012-2013.

With best wishes,

Alok Shrivastava
(Hon President - ISA Delhi Section)

Message from Secretary Desk:

I take it as an immense pleasure to write a message through this newsletter about ISA-D journey in the year 2011-2012. We had a glorious year with two mega events PNID-2011 and POWAT-2012, regular monthly meets, Essay Competition, ISA-D Outstation meet in Jim-Corbett-National Park to encourage team building, leadership development & to seek strategic direction from senior leaders from automation industry across various sectors etc.

In this global economic scenario that is continuously evolving, we need to constantly re-invent ourselves and acquire the requisite competitiveness to stay ahead.

We believe in the development of Technology through sharing of knowledge & experiences and challenges faced by end user s in various industrial sector. PNID-2011 and POWAT-2012 has provided a concrete platform for technocrats from various sector of industries to share their versatile experiences and knowledge to face the challenges in the field of Instrumentation and Control Automation for the safe and efficient operation of industries.

I am thankful to all ISA members, sponsorer and end user s for supporting us in organizing all technical events on ISA Delhi platform.

I firmly believe that in the upcoming years we will organize many more such events on technology developments for various industrial sectors in the field of Control and Instrumentation.

I look forward to your valuable guidance and incessant supports always.

Best Regards,

Anil Mishra

(Honorary Secretary – ISA-D)

The basic thing is that everyone wants happiness, no one wants suffering. And happiness mainly comes from our own attitude, rather than from external factors. If your own mental attitude is correct, even if you remain in a hostile atmosphere, you feel happy.

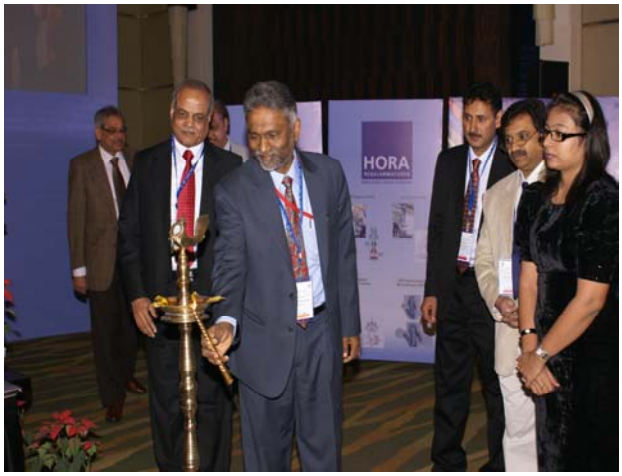
By : Tenzin Gyatso, 14th Dalai Lama

POWAT – 2012, Power Automation Technology Event (Conference and Exhibition) at Hotel "The Grand", Vasant Kunj-Phase-II, Nelson Mandela Road, New Delhi on 13th & 14th January 2012.

A mega Technical Conference and Exhibition, **POWAT – 2012**, two day Conference and Exhibition on Power Automation Technology Coal based Thermal Power Plant, Gas based GTG Power Plant, Nuclear Power Plant Industries Domain was organized by ISA-Delhi Section in Hotel "The Grand", Vasant Kunj, Nelson Mandela Road, New Delhi on 13th and 14th January'2012. The event was graced by Dignitaries and Senior leaders from power industry such as **Shri D. K. Jain, Director Technical, NTPC**, Guest of Honour **Dr. M Ravi Kanth – C&MD-Projects & Development India Ltd.**, **Shri Y S Mayya – C&MD-ECIL**, **Shri Ravi Kapoor – Head EPC, Thermal, LANCO Infratech.** ISA members from various parts of India & globe and esteemed guests from various industries attended the meet. Event started in our socio-cultural way by welcoming the esteemed dignitaries with Bouquet and lamp lighting.

D. K. Jain, Director Technical, NTPC

Dr. M Ravi Kanth – C&MD-PDIL



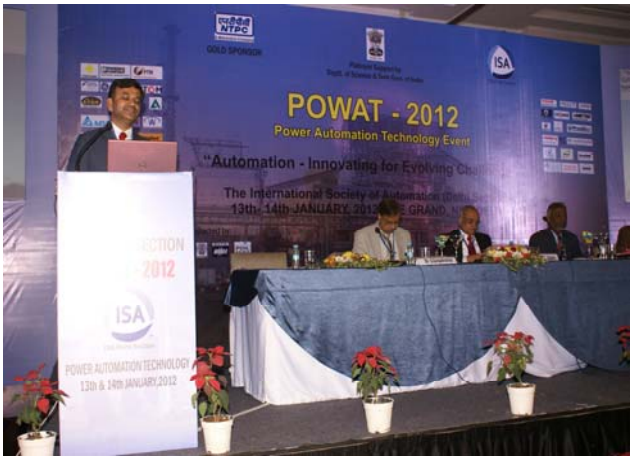
In his welcome address **ISA-D president, Shri Alok Shrivastava** thanked all esteemed dignitaries, senior advisors, paper presenters, ISA-D Committee members, sponsors, participants and all others who supported to make this mega event one of the best in the country.

Shri Ravi Kapoor expressed his gladness in his keynote address for being part of this mega event. He ongratulated ISA-D for organizing this event with the vision of POWAT - "Take the automation in the Indian Power sector to global heights and acquire numero-uno position" and the mission of POWAT "Engage all stake holders of power sector in adopting the latest instrumentation and automation standards, there by achieving safe, reliable, efficient and environment friendly power availability in country".

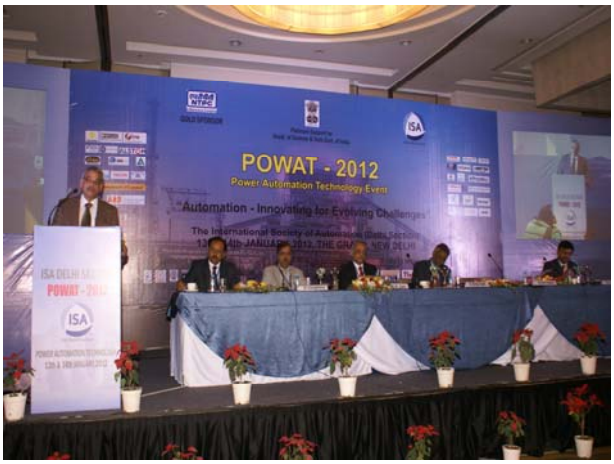
He emphasized in his key note address regarding endeavor to develop a technology road map through continual efforts and various technical programs by involving not only the technocrats, scientist, IT and

Management professionals but also the senior policy makers, doyens of industry to influence future course of power industry.

Shri Alok Shrivastava, ISA-D President



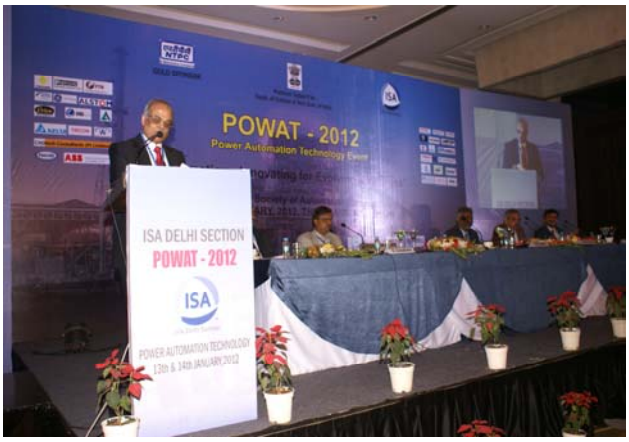
Shri Ravi Kapoor, Head EPC, LANCO Infratech



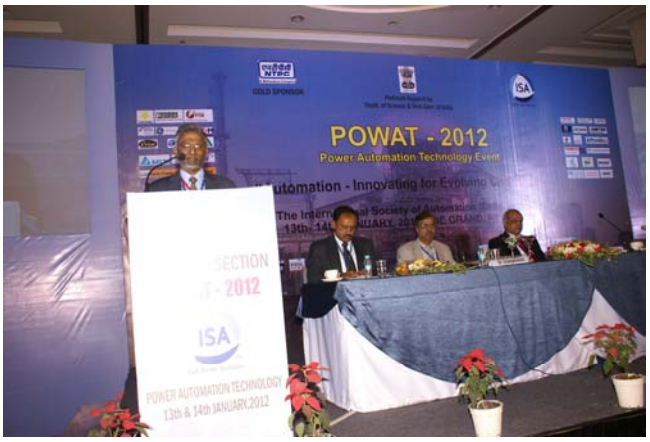
Our chief guest Shri D. K. Jain while addressing the audience congratulated ISA Delhi for bringing out this compendium of technical papers and explained how this kind of symposium help end users, consultants, professionals, EPC companies, vendors and a platform for sharing knowledge to meet the future challenges in power industry .

Our Guest of Honour, **Dr. M. Ravi Kanth** in his speech expressed gladness about the 4th Power Automation Technology event POWAT-2012 by ISA(D), which gives opportunities to suppliers, technology developers, consultants from various power industries for understanding the challenges and customer requirements for better services.

Shri D.K. Jain, addressing audience

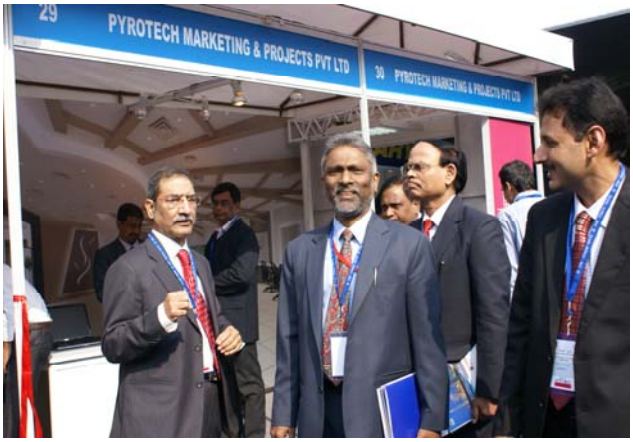


Dr. M. Ravi Kanth, addressing audience



The live demo exhibition stalls of Instruments and Control Systems put up by various Instrument & Control Systems companies and our sponsors on Power Plant Instrumentation was inaugurated by our chief guest **Shri D. K. Jain and Guest of Honour Dr. M. Ravi Kanth**

Guests visiting Live Demo Exhibitions and Stalls for various Automation Products



Technical session started with invited papers in Session-1 (in Day-1) on **"Power Spectrum"** by eminent speakers from reputed power industries on topics with **Session Chair Shri Sharad Anand, ED Engineering, NTPC and Session Co-Chair Shri Ganpatiraman, ED-BHEL-EDN**

- I&C for Safety of Nuclear Power Plants, by Shri A. K. Chandra, ED (C&I, E, R&D-ES), NPCIL, Mumbai.

- Optimisation for thermal Power Plants, by Shri Sai Kumar, DGM-BHEL EDN-Bangalore.

Shri A. K. Chandra explained about the importance of role of Instrumentation & Control to maintain the Nuclear Power Plant in safe state. The main objective in Nuclear Power plant is to prevent release of radioactive products in environment beyond acceptable limits. How safety considerations are critical in the design and operation of I&C systems were also discussed by him.

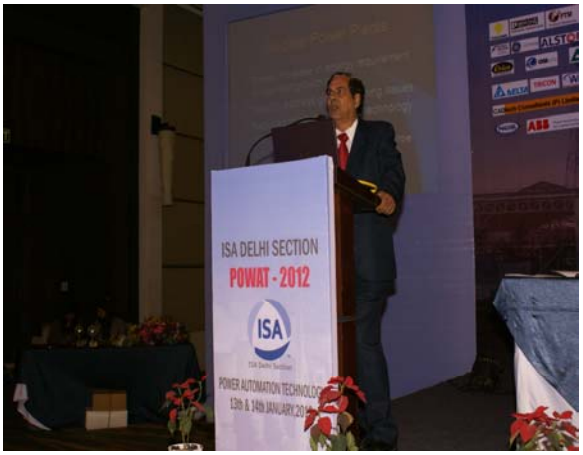
Performance, Analysis, Diagnostics and Optimisation (PADO), a software based solution and its features were explained by **Shri Sai Kumar from BHEL-EDN,** Bangalore for overall Power Plant performance improvement. He also elaborated how this powerful software tool enables the power plant operator to run the plant in most optimized manner and also helps him analyzing the plant operating parameters for better control, diagnostics, and availability. While discussing the system configuration for PADO, various functionalities were also explained by him in following sequence:

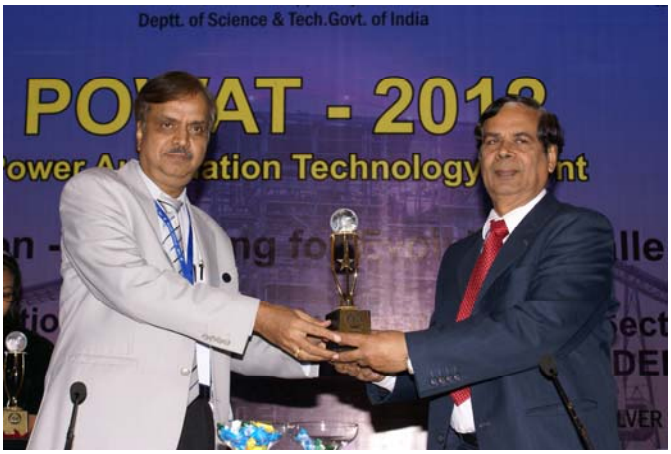
- Performance Analysis and Monitoring of Systems & Components
- Emission Analysis & Monitoring
- System and Performance Diagnosis
- Set point optimization Boiler performance optimization
- Boiler Stress Condition Analysis
- Interactive water & steam chemistry management system

- Regenerative cycle performance optimization
- Cooling Toer optimization
- Flexibility to interface for any type of DCS systems and seamless integration of PADO results and recommendations in DCS systems.

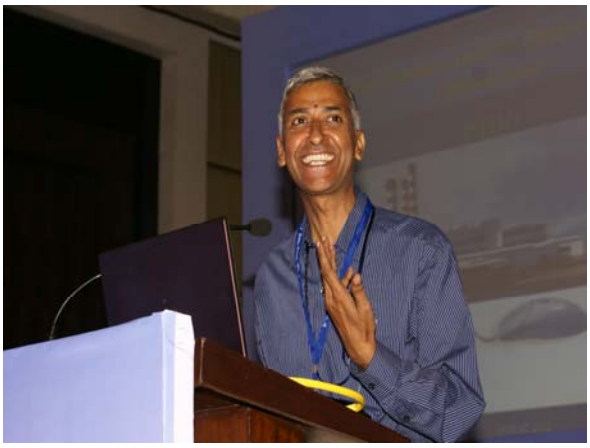
Various key benefits of this PADO software were discussed concluding how this empowers Power Plant utility with the most valuable data available to make quick business decisions.

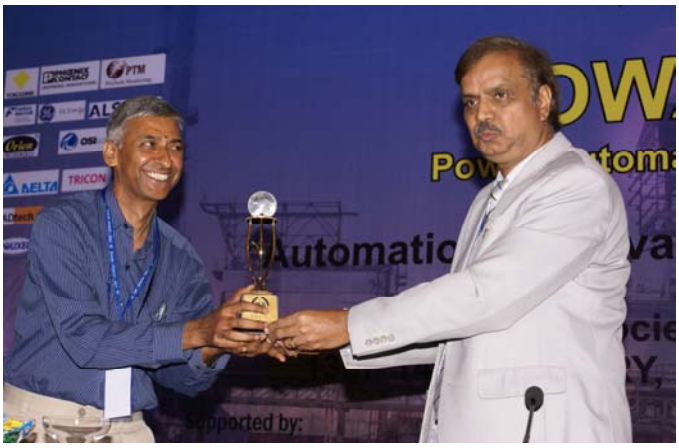
Shri A.K. Chandra, ED (C&I), NPCIL presenting his paper and receiving memento





Shri Sai Kumar from BHEL-EDN, presenting his paper and receiving memento



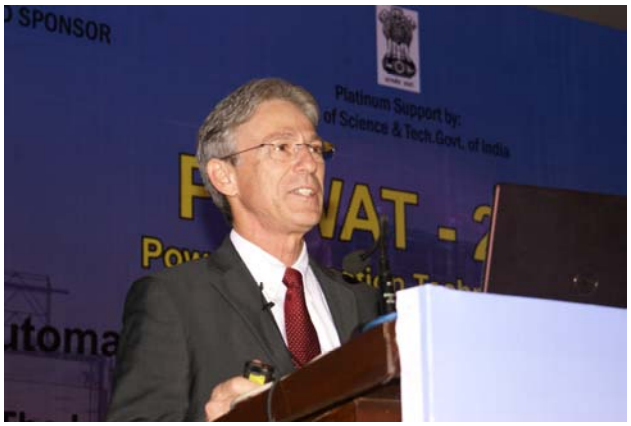


After the sumptuous lunch, Session-2 started on Subject **"Automation in Thermal Power Plants"** with Session Chair Shri Ajit Kumar – GM-Nuclear- NTPC, and Session Co-chair Shri K R Bhardwaj – AGM-HOD-C&I- PEM BHEL. Following were the most useful topics for power industry:

- Volume measurement using 3D Technology by Mr. Motti Holler – APM Automation Solutions Ltd., Tel-Aviv, Israel.
- Hazardous Area Classification and Methods of preventing fire and explosion hazards in Gas and Coal based Thermal Power Plants by Shri Ashok Panda, Shri Nikhilesh Kumar and Soumya from LANCO Infratech Ltd.
- Particulate Emission Monitoring by using Triboelectric Technology by Mr. Karl Ehrström, CEO-SINTROL Oy, Finland and Vikram Singh Area Sales Manager (India)

Mr. Motti Holler in his lecture introduced a technology, how an array of low frequency transducers measure and map the entire surface area and a patented algorithm that process the information and generate 3-dimensional map. This technology represents very attractive solutions to continuous level and volume measurement challenges and monitoring of bulk inventory that consists of particulates piled up in bin or silos. He explained how this technology is better in comparison to other existing technologies of simple radar level measurement, ultrasonic level measurement as these existing technologies are insensitive to the shape of contents, solid particles shape in the bin or silos. This technology employs 2-D array beams and analyzes the received signals from estimated time of arrival and directions of received echoes and by generating 3D image of the surface that can be displayed on a remote screen with estimated values of height and volume with accuracy of 1%.

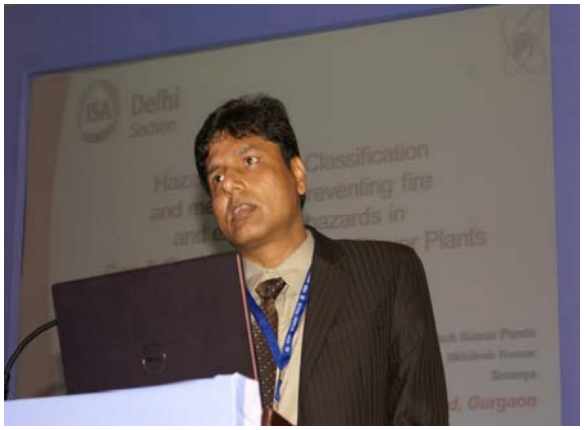
Mr. Motti Holler, giving his lecture and receiving memento from Shri Ajit Kumar



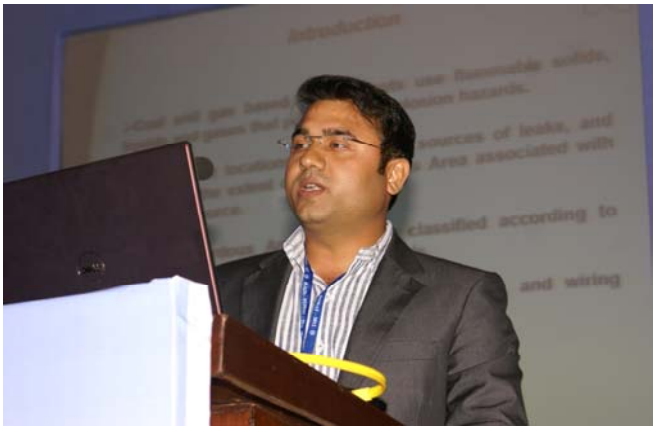
Mr. Scott Billington , Mr. Michael Hafner and Mr. Tom Holst shared their experiences and technology know-how about Microwave Blade Tip Sensing, capabilities for Turbine Operator. They discussed in detail how developments in microwave blade tip sensor are particularly well suited to long term operations in the turbine environments relative to other sensor technologies because microwave sensors are immune to high EMI interference, ionized particles, dirt, oil, and other contaminants; microwave sensors with GHz carrier frequencies are capable of making fast measurements without any frequency response / effect. Blade tip clearance and blade vibration measurement also improves the engine efficiency and with the help of this technology engine rubs and its degradation can be avoided.

Shri Ashok Kumar Panda, Shri Nikhilesh Kumar and Soumya from Lanco EPC, explained Design Basics of Hazardous Area Classification for (i) Hazardous Dust Area Cl;assification, (ii) Hazardous Area Liquid Classification, (iii) Hazardous Area Gas Classification, (iv) Self Ignition Temperature (SIT), (v) Aoto Ignition Temperature relating to various International Codes and Standards e.g. NEC, IEC, NFPA. They also detailed out the various methods of prevention / protection used in Hazardous locations. Main components and systems in power plant that poses fire and explosion risks were also discussed by them.

Shri Ashok Kumar Panda



Shri Nikhilesh Kumar



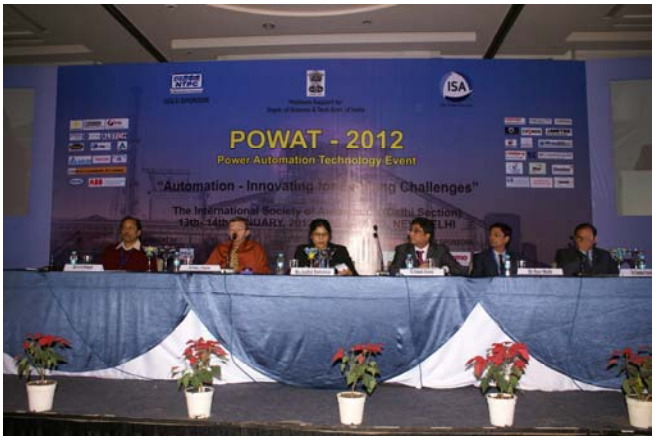
Particulate Emission monitoring is now a burning topic of today's headlines and a point of discussion among environmentalist. **Mr. Karl Ehrström, CEO-SINTROL Oy, Finland and Vikram Singh Area Sales Manager (India)** enlightened all the participants how Triboelectric Technology helps in monitoring the particulate emissions and described its benefit compared to Optical Technology. In this technology the isolated sensor is placed inside the channel and the pure mechanical impact between dust particles and sensor rod affects the DC current and it is proportional the dust concentration in the channel. Its benefits e.g. easy installation, immunity to high vibration effect, installation in corrosive environment, ease of maintenance was also explained in detail.

Shri Ashok Kumar Panda and Shri Nikhilesh Kumar receiving memento from Shri Ajit Kumar

Mr. Karl Ehrström, CEO-SINTROL and receiving memento from Shri K R Bhardwaj

Session 3 started with the subject "Automation Solution in Combined Cycle Power Plants" and this session was chaired by Mrs. Arundhati Bhattacharya, GM PE-C&I, NTPC along with session co-chair Shri Siddharth Ghosal, Director GE Energy. Following were the topics in this session which enlightened our audiences with Automation Solutions in Power Plants:

- Remote Operations and Monitoring of Origin Power Station and Managing Security of Control Systems by Mr. Ravi Malik, I&C lead "Origin Energy" Australia.
- Output loss Analysis – A tool to monitor Real time performance losses of a CCGT power station by Mr. Diwakar Kaushik and Vinay Pratap Singh, NTPC ERP.
- Reducing uncertainty in Fuel gas Measurement by Mass Spectrometry by Mr. Peter J traynor and Dr. Robert G Wright from Thermofisher Scientific, Sugar Land Texas and from Thermofisher Scientific from Winsford, Cheshire, UK.
- Greenhouse Gas Emissions Reporting – Combined Cycle Power Plant by Shri VVV Prakash and Shri Kalluri Anjaneyulu from Bechtel India Pvt. Ltd.



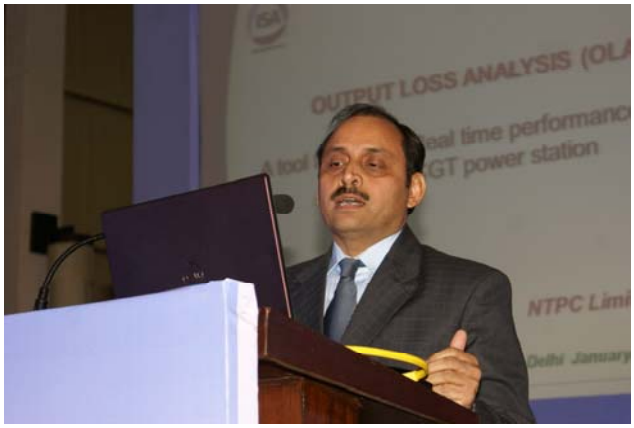
Mr. Ravi Malik highlighted the need of remote operation and monitoring of Power Stations due to growth in Power Generation and Managing Security Risks of Control Systems with remote access requirements. He explained the basic requirements for Remote Operation and Monitoring Setup and various challenges needs to be faced to set up remote operation. He discussed in detail the challenges generally needs to be faced e.g. Training commercial traders to operate the power plants, Access Control , Operational procedures, customized logic design strategy, Alarm Escalation, Emergency Trip situation, Alarm Standardization. Tangible benefits were also detailed out in terms of Cost savings, In-house skill up-lift, Scalability.
Security threats like Network Security, Operational security and physical security threats and various methods for fighting these threats were discussed along with criteria for high availability and reliability of the Systems.

Mr. Ravi Malik during presentation and receiving memento from Mrs. Arundhati Bhattacharya

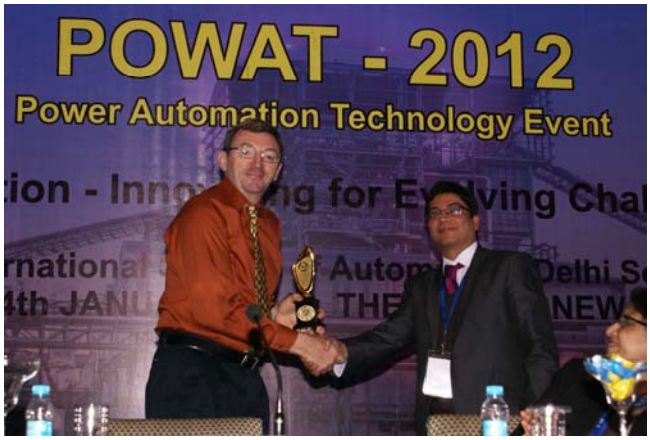
PI Systems (Plant Information Systems), a data historian is a real time information management system with Client Server Architecture or automatic data collection, storage and presentation for monitoring and analysis. **Mr. Diwakar Kaushik and Vinay Pratap Singh, NTPC** discussed in detail the implementation of ERP Systems, PI Systems and how this made the real time process data available along with business transaction to higher management for decision making. They explained about the Network Integration, Output Load Analysis (OLA) Process Flow, benefits of Output Load Analysis in identifying the loss areas, effective decision making by operation people for optimizing the station performance, providing alerts for GT compressor efficiency etc. improving the overall performance of the organization.

Fuel Gas plays a major role in deciding the performance of Power Plant and hence reducing uncertainty in Fuel Gas Measurement is vital in Power industry. **Mr. Peter J Traynor and Dr. Robert G Wright** shared their experiences starting with basic physics behind the operation of Mass Spectrometer and its utility in measurement Fuel gas Mixture with better accuracy. They also explained the basic Analyser design, sample handling, its accredited calibration / validation and its wide range of application starting form thermal / gas / nuclear power plants, oil and gas industry and petrochemical industry.

Mr. Diwakar Kaushik during presentation and receiving memento from Mrs. Arundhati Bhattacharya



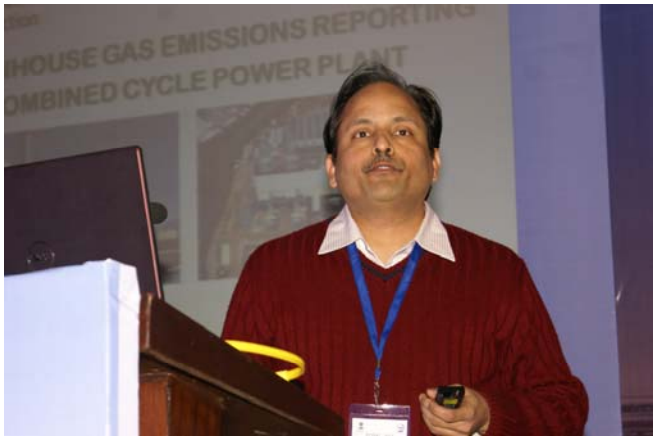
Mr. Peter J Traynor during his lecture and receiving memento from Shri Sidhhartha Ghoshal

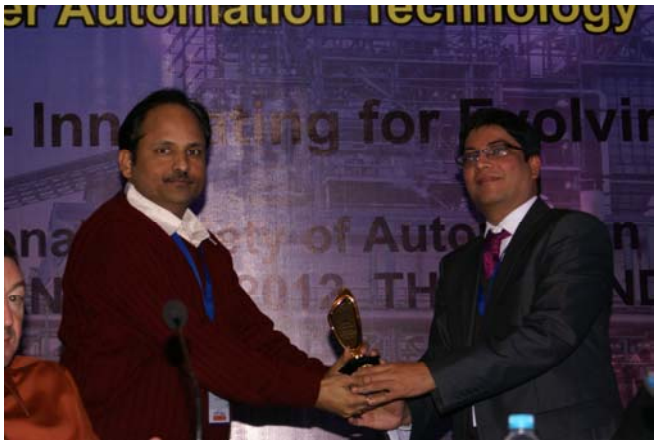


Shri VVV Prakash and Shri Kalluri Anjaneyulu made all of us aware about the importance of Emission Reporting and optimizing the harmful emissions in the environment to reduce the Green House effect. They explained the U.S. Environment Protection Agency (EPA) Mandatory Green House Gases Reporting Rule 40CFR PART 98. They also explained how NOx emission can be reduced by Selective Catalytic Reduction (SCR) method. Importance of Continuous Emission Monitoring System were also highlighted and reporting requirements of Acid rain Program as per 40CFR75 in addition to Mandatory Green House Gas Reporting (40CFR98) were also discussed in detail by them.

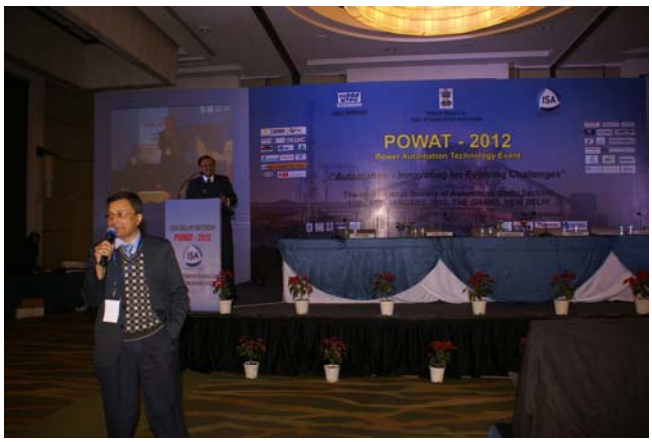
Mr. Prasenjit Pal and Mr. P. Sengupta from NTPC and veterans of ISA-Delhi section organized the Power Quiz and Lucky Dip to have refreshing moments among the audience before winding up the day after heavy brainstorming technical sessions of Day-1. Various prizes were distributed to the winners.

Shri VVV Prakash during his lecture and receiving memento from Shri Sidhhartha Ghoshal





Mr. Prasenjit Pal and Mr. P. Sengupta from NTPC conducting the Quiz Competition



"Automation in Nuclear Power Plants" was the 1st technical sessions of day-2 and the session was chaired by Shri R.C. Dhup – ED-NTPC, Mumbai with Session Co-Chair Shri V.P. Raman – Director, Mottmac, Mumbai. Following burning topics were discussed by various eminent technocrats from NPCIL:

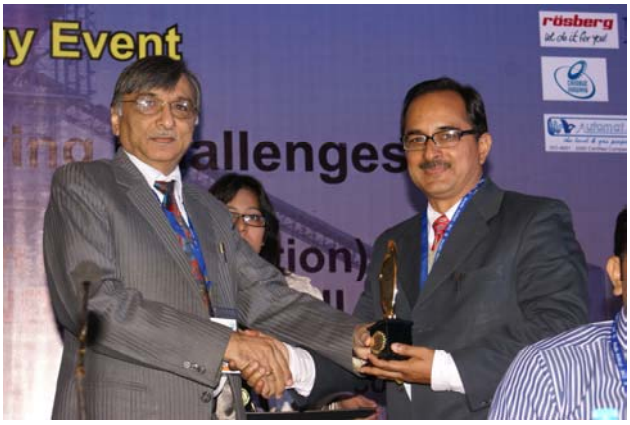
- Radiation Monitoring System in Nuclear Power Plants, by Shri Vinayak B, Shri N P Panchal, Shri N S Kaintura
- Fuel handling Controls in Presurised Heavy Water Reactors by Shri Nitin Rimza, Shri S Bandopadhyay, Mr. joe Peter K, Shri P Nagabhushana, Shri M Bharathkumar, Shri K Agiladaeswari
- Power Control Requirements, Instruments and Techniques for Indian PHWRs by Shri Thangapandi, Shri Sujit Chattopadhyaya, Shri R Balasubramanian
- Reactor Control and Protection Systems of VVER-1000 by Shri Kamlesh Nathani, Mrs Nabanita Pyne and Shri S K Sen

Shri Vinayak B, Shri N P Panchal, Shri N S Kaintura of NPCIL explained that Nuclear plants demands special attention to protect public, environment, and plant personnel from undue hazards of nuclear radiation produced during Nuclear Reactor operation. They highlighted the importance of Radiation Monitoring system to monitor the radiation levels in and around the plant. Explaining the basics of Radiation and its effect, they also presented the technology of various types of Nuclear radiation detectors e.g. gas Filled Type, Scintillator Type, Semiconductor type, Direct reading dosimeters, Thermo-luminescence dosimeters, film dosimeters. Different types of nuclear radiation detectors suitable for various locations of Nuclear Power Plants were also discussed as follows:

- GM detectors for low radiation, Ventilation duct, plant personnel and their clothes radiation contamination,
- Ion Chambers in high radiation areas, Tritium activity monitoring
- Scintillation type detectors for gamma activity in stack monitoring, radiation level around the plant boundary, Process Water in heat exchangers for any leakage.

They also discussed the new technology being developed for Nuclear Radiation measurement like Online Channel Analyser based gaseous activity monitors, Proportional counter based Portal Momitors, Radition Monitors with Ethernet / Wireless communication.

Shri N S Kaintura of NPCIL presenting his lecture and receiving memento from Mr. R.C. Dhup



Fuel Handling System (FHS) in Pressurized Heavy Water Reactors (PHWR) of Nuclear Power Plants is a very dynamic system with fully automatic robotic control with high precision with minimum or no operator intervention through digital I&C. **Shri Nitin Rimza, Shri S Bandopadhyay, Mr. joe Peter K, Shri P Nagabhushana, Shri M Bharathkumar, Shri K Agiladaeswari from NPCIL** briefed about the nuclear fuel, importance of control systems in its handling ensuring safety interlock logic for safe operation. Basic FHS control systems involves Pressure Control, Level Control, Force Control, Speed Control, Position Control (Auto / Accurate Poistioning of mechanical rams), Advancing retracting of hydraulic cylinders etc. were presented in detail. Importance of high precision sensors like LVDT, proximity switches, Micro-switches, Reed Switches, Commutator switches, pressure / flow / level & temperature switches, digital control system were also highlighted.

A good leader is a person who takes a little more than his share of the blame and a little less than his share of the credit.

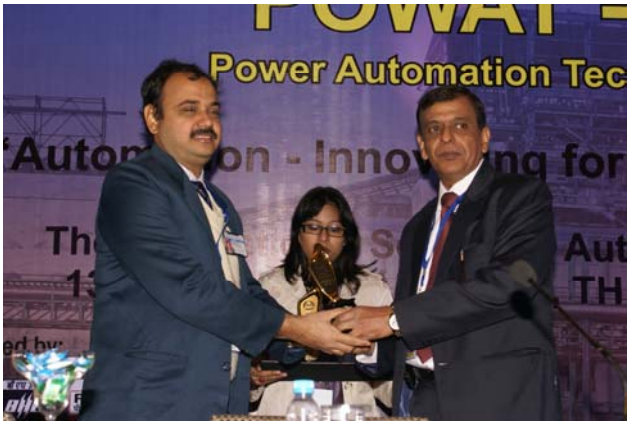
By: John C. Maxwel

Shri Nitin Rimza of NPCIL presenting his lecture and receiving memento from Mr. R.C. Dhup

In this section of **Automation in Nuclear Power Plants** Shri Thangapandi, Shri Sujit Chattopadhyay, Shri R Balasubramanian presented the Power Control of large nuclear reactors by Dual Computer Hot-Standby Systems (DCHS) in PWHR Nuclear Power Plants. They explained that Reactor Power control is for starting the reactor, changing, of reactor power, maintaining power and shutting down for maintenance or unsafe condition to avoid any accidents, maintaining neutron flux. Unique requirement of Reactor Power Control were also explained in detail e.g. Execution of Reactor setback i.e. reduction of power with rapid rate when any potential unsafe situation occurs, withdrawal of Shut off rods, limited xenon override capabilities for quick restart after reactor trip. Following nuclear power instrumentation were also discussed in detail

- Sensor Instrumentation e.g. neutron detectors, Ion chambers systems, In-core flux detectors, Thermal Power measurements.
- Actuator are reactivity devices which can alter neutron multiplication e.g. Zone Control Compartment, Adjuster Rods, Control Rods, liquid poison Instrumentation
- Power Control Algorithm for Representative Signal generation, Bulk Power and Zone Power estimation, Demand Power Programme, Effective Power Error calculation, Reactivity control algorithm, Shutoff Rod withdrawal Logic, Manual control
- Dual Computer Hot-standby Architecture implementation independent of network for control purpoe.

Shri Sujit Chattopadhyay during his presentation and receiving memento from Shri V.P. Raman



Shri Kamlesh Nathani, Mrs Nabanita Pyne and Shri S K Sen from NPCIL provided an overview of typical Reactor Control and Protection System of VVER-1000. They discussed how the advanced features of this RCPS VVER-1000 system plays a key role in controlling, regulating reactor power during normal operation and initiates protection (reactor trip, step-back, setback and hold back) based on neutronic and process parameters when their operating limits are exceeded. Basic subsystems of reactor Control and Protections were discussed in following sequence:

a. Emergency Protection & Preventive Protection (EP-PP)System
b. Automatic Power Controller (APC)
c. Rod Control and Indication System (RCIS)
d. Final Control Element (Control Rods)

This whole session from NPCIL provided a in-depth journey of Nuclear Power Plant Instrumentation & Control to all our audiences.

Mrs. Nabanita Pyne presenting her lecture and receiving memento from Shri V.P. Raman

"Automation Advancement in Various Field including Transmission and Distribution" was the subject in Session-5 with Session Chair Shri Y K Sehgal, ED Power Grid Corporation and Session Co-Chair Shri Shirish Chandra, Yokogawa, India. Following eminent specialists shared their experiences on the various subjects:

- Edifying the Smart Future of Power Utilities by Analysing the Concept of Generation Side of Virtual Power by Mrs. Saroj Chelluri DGM (PE-Elect), Amit Kulshreshtha DGM(PE-Mech) and Prasenjit pal DGM and STA to D(T), NTPC
- Application of Foundation Fieldbus and DART Technology in Power Plants by Shri Arasu Thanigai, Business Development Manager, P&F Singapore
- Power to Control the Process Control by Ms Anuja Thukral, Phoenix Contact (India)
- Implementation of BOP PLC Standardization and BOP Network at Rosa Power Plant by Viswanathan Kumar from Reliance Infrastructure Ltd., Noida (India)

Mrs. Saroj Chelluri, Amit Kulshreshtha and Prasenjit Pal from NTPC presented a study report explaining compelling isues of increasing size and complexity of grid with power system loadings, increased distance between generation nodes and loads, fluctuating renewable, need for energy storage and increasing volume of energy transactions. Other constraints like Cost pressures, increased transparency of energy consumption patterns and significant regulatory pressures both for transparent and competitive energy pricing and emission controls were also highlighted. A Report on Indian Power Grid, Smart Grid – The Game Changer key strength, Virtual Power Plant (VPP) for a Generation Utility – Centralized Management System were discussed in detail by this team. Following major function for which Generation side of VPP modeled and designed were also presented before the audience:

- Generation Control and Dispatch Scheduling
- Multi-Area Automatic Generation Control,
- Transaction Evaluations,
- Commitment Comparison,
- Demand Response and Short term Load Forecasting
- Status of Evacuation Lines Capability and Availability
- Fuel Status Monitoring
- Emission Monitoring Dashboard
- Portfolio Management and Outage Management

System Architecture for the VPP concept, Applicability of Virtual Power Plant Concept and its Benefit were also elaborated. In short we understood that VPP concept shall make the Power Generators work smart rather than hard.

Mrs. Saroj Chelluri presenting her lecture and receiving memento from Shri Y K Sehgal

One should, perform karma with nonchalance without expecting the benefits because sooner or later one shall definitely gets the fruits.

By : Rig Veda

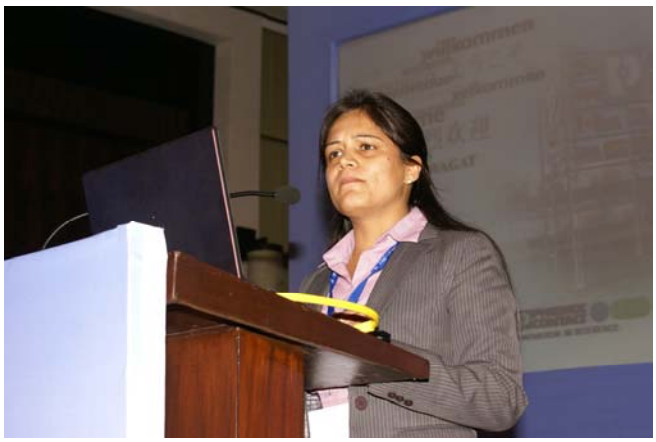
Shri Arasu Thanigai, Business Development Manager, P&F Singapore in his presentation described how Foundation Fieldbus and DART Technology can help in increasing plant efficiency reducing total cost of ownership and its advantages in Power Plants. He briefed evolution of Fieldbus technology from Entity concept, FISCO, HPT or Field Barrier and finally to DART Fieldbus concept. Advantages of FF technology and DART technology in projects were elaborated from installation Phase, commissioning phase, operation phase and maintenance phase.

Shri Arasu Thanigai presenting DART Technology

Receiving memento from Shri Shirish Chandra

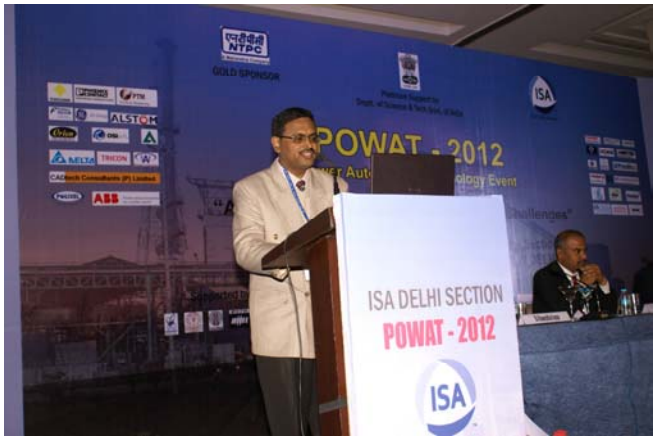
Ms Anuja Thukral, Phoenix Contact (India) elaborated the importance of Switch Mode Power Supply (SMPS) equipment used for the Control System. Design of SMPS shall be such that SMPS is able to take care of any future expansion loads and also be rated for un-expected high inrush currents during start-up. She explained Static Power Reserve feature of SMPS ensures that the power supplies deliver the necessary increased current of up to almost 50% above the nominal rated value. Automatic Power supply switching in case of redundant power supply and importance of load sharing between primary and secondary power supplies in increasing their service life were also discussed.

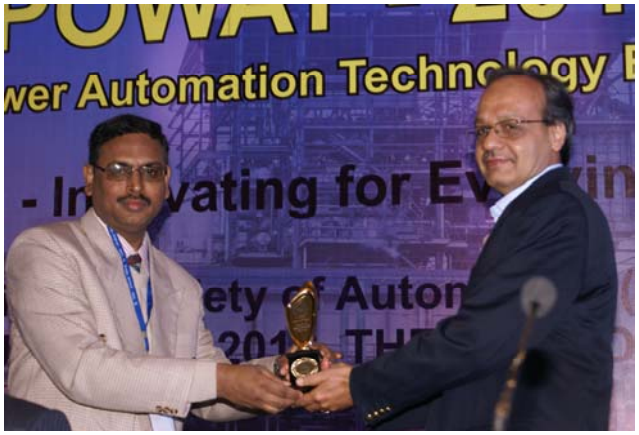
Ms Anuja Thukral during her presentation and receiving memento from Shri Y K Sehgal



Shri Viswanathan Kumar from Reliance Infrastructure Ltd., Noida (India) discussed about the "Implementation of BOP PLC Standardization and BOP Network at Rosa Power Plant". While explaining the Balance of Plant (BOP) Network Configuration, Control and Automation philosophy implemented in ROSA Power plant were presented. Highlighting the advantages of Standardization of BOP PLCs and BOP PLC Network, he elaborated the BOP Network design basics, BOP Network System Components, BOP PLCs Design basics, Packages Control and monitoring from BOP Network system.

Shri Viswanathan Kumar presenting his lecture and receiving memento from Shri Shirish Chandra





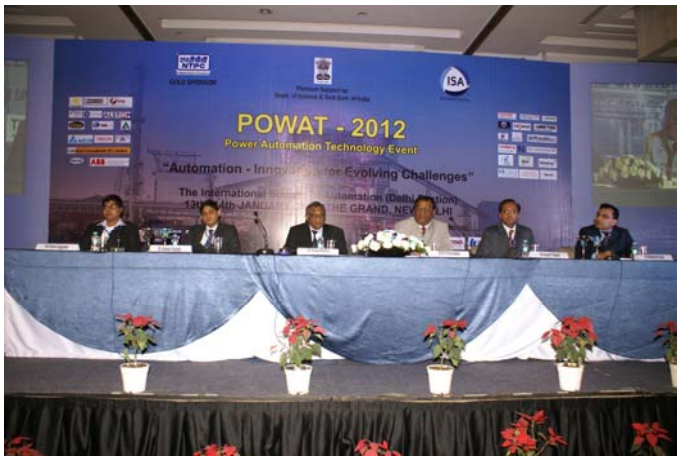
Safe and efficient operation of a plant is the motive of an operator and Plant Assets are very important for any industry. Post Lunch Session of Day-2 with Session Chair Shri N K Shrivastava-GM R&M, and Session Co-Chair Shri Pankaj Bhartiya, GM Cen-PEEP, NTPC Ltd. started on subject **"Plant Asset Management"** Technical experts on the said subject appraised the audiences with their experience and knowledge.

- Fleet optimization through real time Enterprise Integration by Shri Shekhar Kamath from OSI Soft.
- Effective Planning of Resources and Monitoring Overhaul Preparedness through ERP, Shri Anand Prakash & Shri Vinay Pratap Singh from NTPC ERP.
- Development of Automation Mechanism for inspection of power plant components in critical areas by Kishore Aggarwal, Badri Vishal gupta and rakesh Kumar Chakraborty, NTPC NETRA
- Advance Vibration Analysis & Diagnosis System For Power Plant Rotary Machine – It saves Cost and Increase Up-Time, by Shri Mukesh Vyas – Div Head – India Forbes marshall Pvt. Ltd. – Shinkawa VMS System
- Monitoring Plant Assets using optimum selection of Technology and Methodology by Pankaj Kumar Sharma, Sr. Service Manager, GE India Industrial Pvt. Ltd. (Div. Bently Nevada)

Mr. Shekhar Kamath from OSI Soft highlighted the need of unified data infrastructure across all assets and sites. He stressed upon developing a solution set that has capability to capture the raw data and perform analysis and this is very important in areas like Post Trip Analysis, Process Monitoring, Optimization, Early Warning System, Alarming, Thermal Performance, Fuel Tracking & Costing Analysis, Nox Emmissioin,

Energy Management, and Automatic Generation Control. Various possible solution sets that support a fleet optimization strategy were also discussed.

Plant Asset Management – Presentation Team



Shri Shekhar Kamath during presentation

NTPC ERP team put an imprint in the mind of all the audience about the ERP Systems and its benefits. They discussed how ERP system integrates internal and external management information across an entire organization, embracing business function such as finance, accounting, material managements, operation and maintenance, human resources etc. While comparing a System before ERP and after ERP this NTPC ERP team discussed the following:

- Activity based Budgeting
- Planning of Activities & resources e.g., Preventive maintenance, Corective maintenenace, Overhauling, Reliability, Exceptional, Buildings and Other Assets related jobs
- Repair and Maintenance Budget
- Approval of Budget
- Automatic Triggering Of Procurement Process

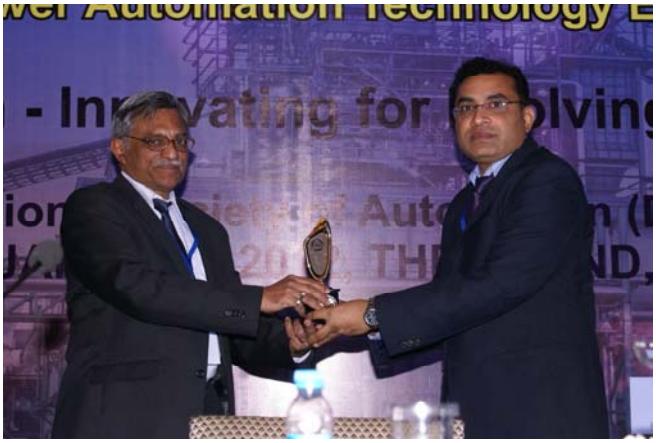
Shri Anand Prakash discussing ERP system and receiving memento from Shri N K Shrivastava

Shri Kishore Aggarwal, Shri Badri Vishal Gupta and Shri Rakesh Kumar Chakraborty from NTPC NETRA through their presentation attempted to provide us an idea of complexities involved in the development of automation mechanism for Boiler tubes inspection and Generator. They elaborated their methods and initiatives in developing robotics mechanism with sensors for inspection of boiler tubes and Generator considering the geometrical complexities of boiler and in generator respectively. They also briefed about the development of In-pipe robot for critical power plants areas.

Shri Kishore Aggarwal delivering his lecture and receiving memento from Shri N K Shrivastava

Shri Mukesh Vyas from India Forbes marshall Pvt. Ltd. – Shinkawa VMS System pointed out the root causes of machinery failure and how this can be known by using Vibration Monitoring System. By monitoring the performance of the critical machines and secondary critical machines predictive shutdown can be planned instead of planned shutdown done frequently thus increasing the plant uptime to 95% overall. Shri Vyas also explained the how machine monitoring system increase in the reliability of the system machinery and reduction of manual intervention that is erroneous.

Shri Mukesh Vyas presenting his lecture and receiving memento from Shri Pankaj Bhartiya



After the lecture on Advance Vibration Analysis & Diagnosis System for Power Plant Rotary Machine by Shri Mukesh Vyas, **Mr. Pankaj Kumar Sharma, Sr. Service Manager, GE India Industrial Pvt. Ltd. (Div. Bently Nevada)** in his topic "Monitoring Plant Assets using optimum selection of Technology and Methodology" elaborated that selection of proper technology for Plant Asset Monitoring plays a vital role. He also elaborated the Vibration and Temperature monitoring system in context of various type of rotating Machines Health Monitoring and their diagnostics and analysis.

Mr. Pankaj Kumar Sharma, GE India

Mr. Pankaj Sharma receiving memento

The whole world is now looking for source of energy which causes less pollution and this reminds us of Hydro Power Plant and Solar Power Generation solution. Topic of Technical Session -7 was the most burning subject "Automation in Hydro Power and Renewable Power Solution". The Session Chair was Shri A.K. Gupta, GM (Business development) NTPC Ltd. and Session Co-Chair was Shri Ramani Iyer, Forbes Marshall Ltd. Following experts from Power Sector in this renewable energy field explained how technology development is increasing the efficiency and operation of hydro Power Plants and Solar Power Plants.

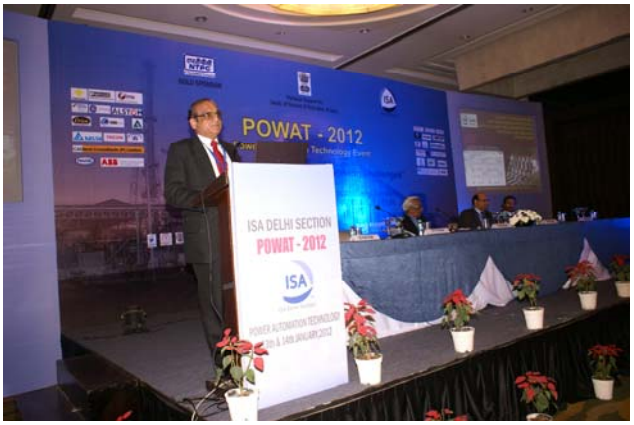
- Latest technologies of Field Instrumentation, Data Collection and Reporting for Dams and Related Structures, **by Shri V. K. Rastogi from Encardio-rite Electronics Pvt. Ltd., Lucknow, India**.
- Two Axis Solar Tracking System, by **Shri S.P.S. Pundir, Shri Rakesh Swami, Shri Vishal Singh from NTPC NETRA**
- Solar Thermal Power Plants – An Overview of Automation, **by Shri Ramesh Kasinath, ABB India**

Advancements in Sensor Technologies and Data Collection by use of latest Technology available in Mobile Phones revolutionized the geotechnical data collection methods. **Shri V. K. Rastogi** in this paper of Latest technologies of Field Instrumentation, Data Collection and Reporting for Dams and Related Structures highlighted the advancement in areas of sensor technologies, data transmission, data recording and presentation in field instrumentation employed for safety monitoring of Geotechnical and Structural Engineering projects. He also elaborated the following:

- Adopting New Sensor technology increases accuracy of measurement and reduces cost
- Use of Bus technology in data transmission will reduce cabling cost

- Wireless eliminates cable laying problems
- Web based data access service allow all stake holders to have access of network data and real time data analysis
- Web based information sharing will allow authorized personnel to initiate remedial action to be alerted to avoid hazardous development and stop catastrophe and can prevent loss of human life, money and time.

Shri V. K. Rastogi during his presentation and receiving memento from Shri A.K.Gupta



Shri S.P.S. Pundir, Shri Rakesh Swami, Shri Vishal Singh from NTPC NETRA explained about the cost effective micro-controller based two axis solar tracker which are useful to tilt Photo-Voltaic module towards sun to harness more Solar Energy. They explained terminologies like Solar Angles, Longitude, Latitude, Julian date, Solar Declination Angle, True Solar Time, Hour Angle, Solar Zenith Angle, Solar Azimuth Angle in context of Solar Power Technology. Elaborating the basics of Solar Energy and Automation control of Solar Power Plant, they highlighted the importance of Solar Tracking System and its Technology development.

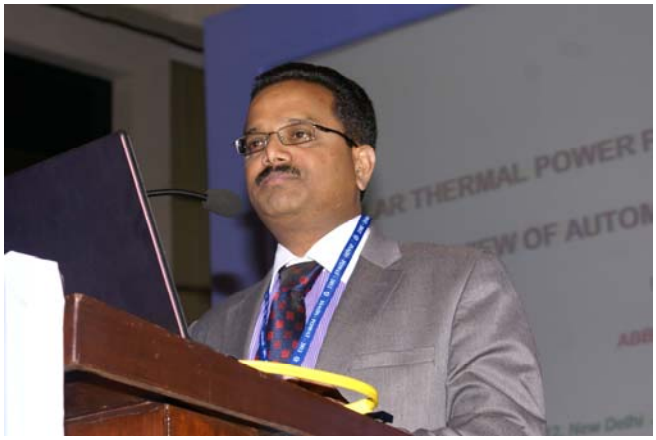
Shri Vishal Singh discussing Solar tracking System and receiving memento from Shri A.K. Gupta

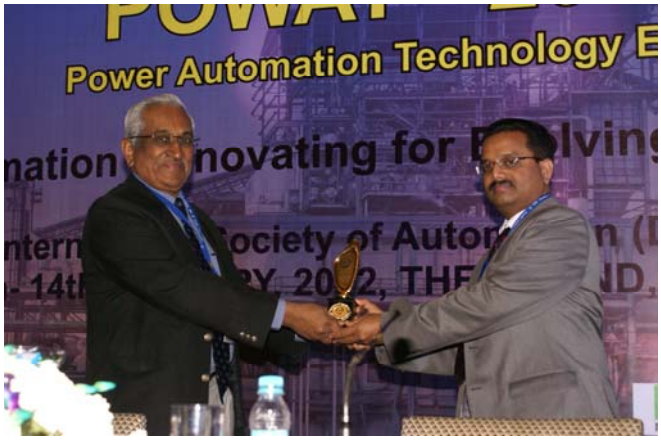
After a lot of discussion in previous presentations on use of cutting edge technology in the field of renewable energy resources, **Shri N. R. Kamath and Shri Ramesh Kasinatha** appraised the audiences about the Automation for Concentrating Solar Power (CSP) parabolic trough Power Plants. They discussed the major components in CSP technology e.g. Concentrator, receiver, Heat Exchanger, Turbine and generator. Control Systems in Solar Power Plants were also explained in details in two sections Direct Control and Indirect Control.

- Direct Control covered Solar Field Control, Heat Transfer Fluid Control, Thermal Energy Storage – TES, Balance Of Plant Control, Feedwater pumps and Water Auxiliaries, Cooling System, Water & Syeam Cycle Control, Condensate Systems, Electrical Systems, Auxiliary Systems
- Indirect Control covered turbine Control, Water treatment System, Instrumentation Compressed Air System, Black Start / Diesel Genset, Auxiliary HTF Boiler, Nitrogen Systems, Electrical Protection Systems

They also discussed a typical Solar Control System (SCS) Structure i.e. Control System Configuration diagram and Solar Field optimization.

Shri Ramesh Kasinatha discussing Solar Power Plant and receiving memento from Mr. Ramani Iyer



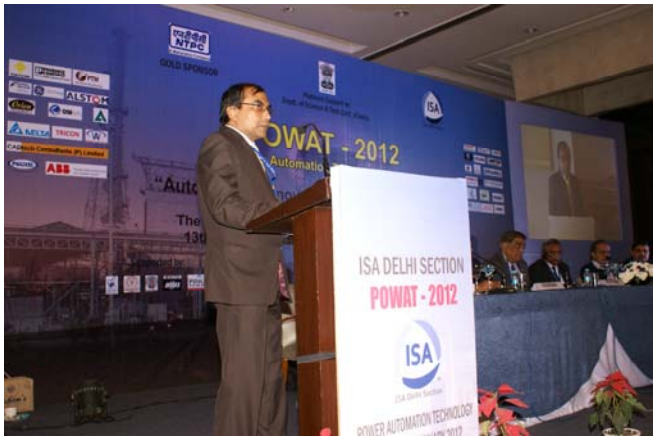


The last Technical Session of this POWAT-2012 was **"Panel discussion on Challenges of Rapid Obsolescence in Automation System and Valedictory Session".** ***The Session was chaired by Shri S. P. Singh, Director (HR)-NTPC***, Eminent technocrats and experts from different sectors of industries Shri Vinod Sharma- CEO- Meja Urja Nigam Pvt. Ltd., Shri Pankaj Bhartiya, GM-NTPC, Shri Shirish Chandra – Yokogawa India Ltd., Shri Rajeev Sharma – Alstom Power were part of this panel discussion along with Panel Secretary and Technical Coordinator POWAT-2012 Shri Soumitra Bhattacharya. This Panel discussion was subject of interests for all the participants and audiences. Panel members explained various queries and curiosity of participants.

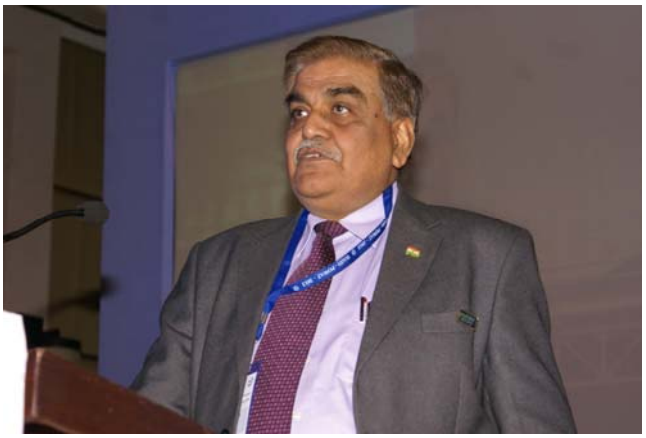
Every day is a new beginning. Treat it that way. Stay away from what might have been, and look at what can be.

By : Marsha Petrie Sue

Shri Soumitra Bhattacharya

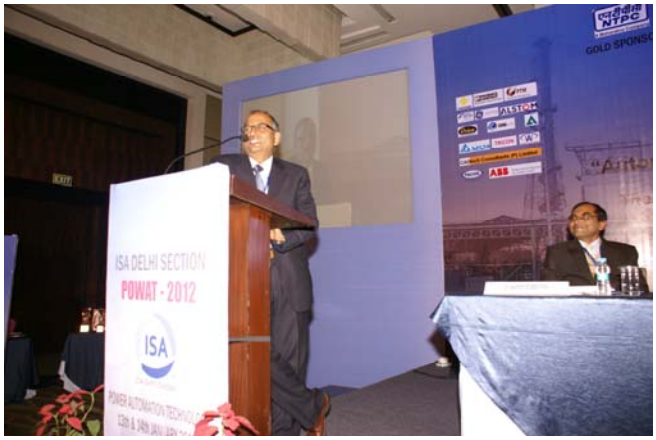


Shri S. P. Singh, Director (HR)-NTPC



Shri Soumitra Bhattacharya, Technical Coordinator, POWAT-2012 invited the Chair-person Shri S. P. Singh, Director (HR)-NTPC and all the participants for the Panel Discussion on Challenges of Rapid Obsolescence in Automation System and Valedictory Session.

Shri Vinod Sharma during Panel Discussion



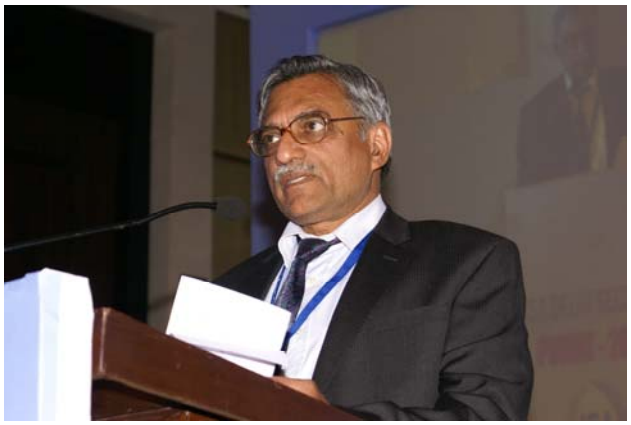
Shri Shirish Chandra during Panel Discussion

Efforts of all the participants, sponsors, exhibitors, speakers were analyzed by Technical Committee POWAT-2012 and best participants in each category like Best Stall and Best Paper were rewarded with token memento by ISA-D.

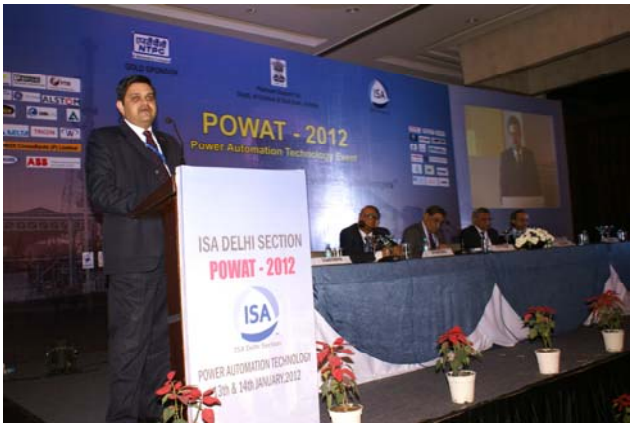
Trust your own instinct. Your mistakes might as well be your own, instead of someone else's.

By : Billy Wilder

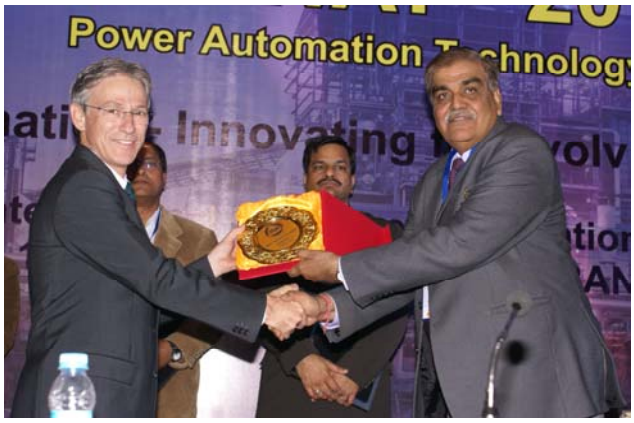
Shri Pankaj Bhartiya, during Panel Discussion



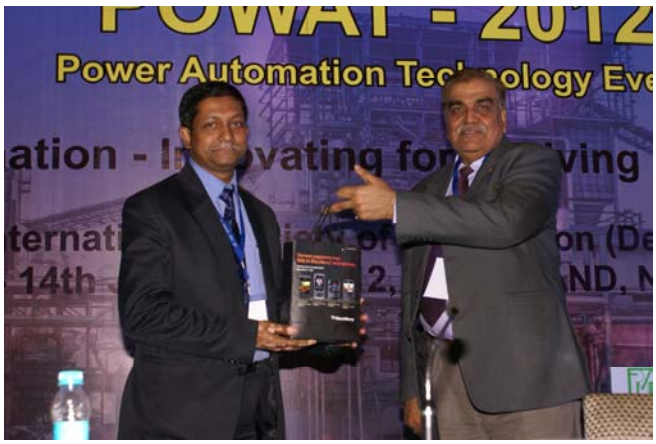
Shri Rajeev Sharma during Panel Discussion



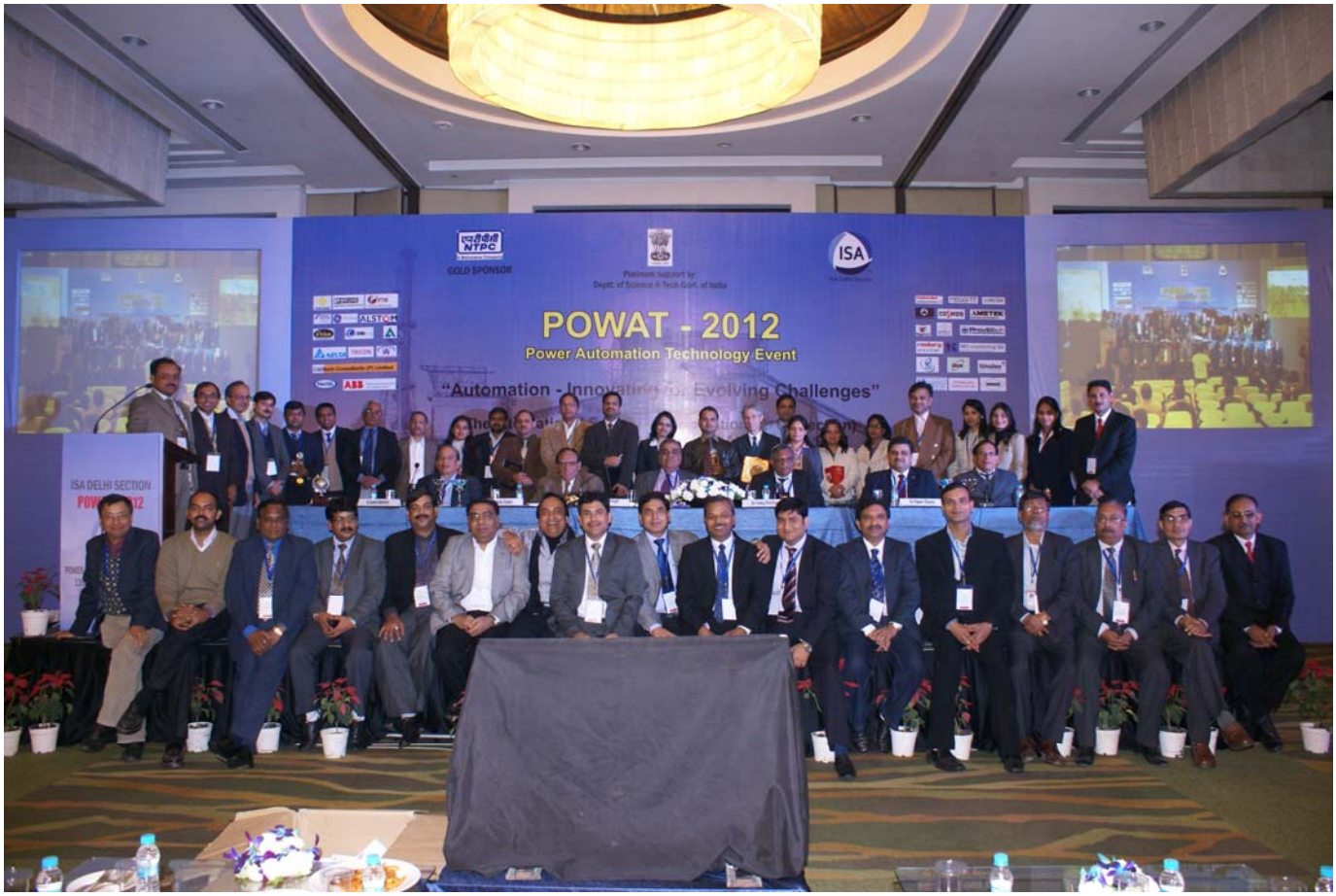
Shri S P Singh presented token of appreciation for best paper presentation to **Mr. Motti Holler** from APM Automation Solutions Ltd., Tel Aviv, Israel and **Mr. Nitin Rimza** from NPCIL, Mumbai.



Shri S P Singh presenting Blackberry to Guests winning lucky Dip Draw and token of appreciation to young ISA-D Student member for their contribution to ISA-D POWAT-2012



ISA-Delhi Section POWAT-2012 Organizing Committee Members



This mega event concluded with gala networking dinner with all esteemed guests and members and heartfelt memorable moments.

TECHNICAL MEET: NOVEMBER'11

A Monthly Technical Meet on **Fundamentals / Basics of Explosion Protection with flame arresters and their proper application in Tank Farms** was organized by ISA, Delhi Section in association with M/s **M/s Protego India Pvt Ltd.** on 11th November 2011 (Friday), at Mirza Galib Chamber, Scope Convention Center, SCOPE complex, Lodhi Road, New Delhi.

Mr. Christoph Leinemann - Managing Director of M/s Protego India Pvt. Ltd. was the speaker of this technical session. He has been responsible for the massive expansion of research and development department, which has enabled the company now well established internationally, to retain its technological leadership in the field of vent valves and flame arresters.

He started his lecture with basic technology and physics behind the Explosion Proof Protection with Flame Arrestor. He also detailed out proper selection, application and installation of different types of Flame Arrestors in various application of Tank Farms. In his technical section on "Safety Concepts in Practice", importance of specially designed Vent valves and Flame Arrestor for various types of tanks handling different types of in-flammable hazardous liquid / gas were also explained by him. Various cases were considered for each type of Flame Arrestor for different types of Tanks / Vessel protection in his technical discussion on "Risk Prevention during Selection of Tank Accessories"

The occasion was graced by audiences from consultants, Oil & Gas, Power, Cement, Paper & Pulp, Fertilizers & Chemicals. Phoenix Contact also arranged a display of their various products which gave audiences opportunity to know about the latest development and their usage in Instrumentation & Control.

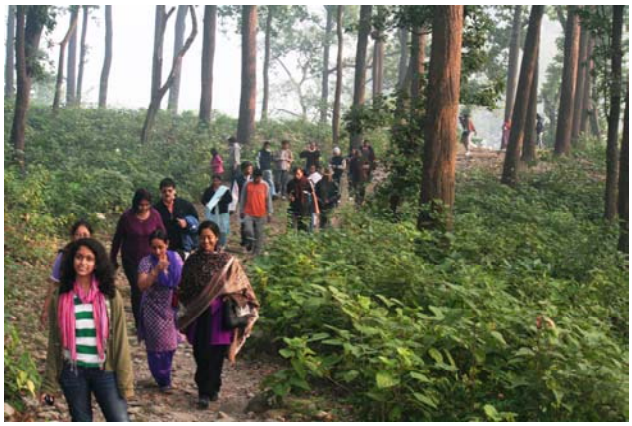
PHOTOGRAPHS OF TECHNICAL MEET-NOVEMBER'11

Mr. Christoph Leinemann

Esteemed Audience in Tech Meet-Nov-11

ISA-D Outstation meet in Jim-Corbett-National Park

ISA-D organized an outstation meet in Jim-Corbett-National Park with all its ISA-D members and their families from 04th to 6th November'2011. This adventurous visit was planned to encourage team building, leadership development & to seek strategic direction from senior leaders from automation industry across various sectors etc. and also to develop execution plan for POWAT-2012 with executive committee members and also for development of cohesiveness and relationship among family members of all ISA-D members. While all ISA-D members were busy in discussing strategic plan for POWAT-2012 and other technical events to be arranged in the year-2012, family members enjoyed trip to Jim Corbett National Park to have glimpses of tigers, various other animals and birds. This outstation meet was a memorable event for all ISA-Delhi members and family members.



TECHNICAL QUIZ – 03

1. What is UNIVAC?
2. What CEMS stands for and how it is important for Environment Protection?
3. What is HAZOP?
4. What is Auto Ignition Temperature (AIT)?
5. What is SSPRT and SPRT?

WINNER OF ISA-D ESSAY COMPETITION

1st Rank - Mr. Rahul Kapoor, winner of Rs. 25000/-
2nd Rank - Mr. Dipak Nath, winner of Rs. 15000/-
3rd Rank - Mr. L Rajagopalan, winner of Rs. 10000/-

Prize money will be distributed to the winner in Annual General Body Meeting to be held on 28.04.2012

ANSWERS TO TECHNICAL QUIZ – 02

1. What is the internal impedance of an ideal current source?
   Answer: Internal Impedance of and Ideal current source is infinite.
2. Which bridge is used for measurement of inductance?
   Answer: Maxwell-Wien bridge is a type of Wheatstone bridge used to measure an unknown inductance
3. What is the figure called used for measuring frequency in CRO?
   Answer: Lissajous figures.
4. What is the name of instrument with which term "Wake Up frequency" is linked with?
   Answer: Thermowell for Thermocouple most common instrument with which term "Wake Up frequency" is linked.
5. Is SCADA in built in DCS?

   Answer: Yes SCADA (Supervisory Control & Data Acquisition System) is in-built in DCS.

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