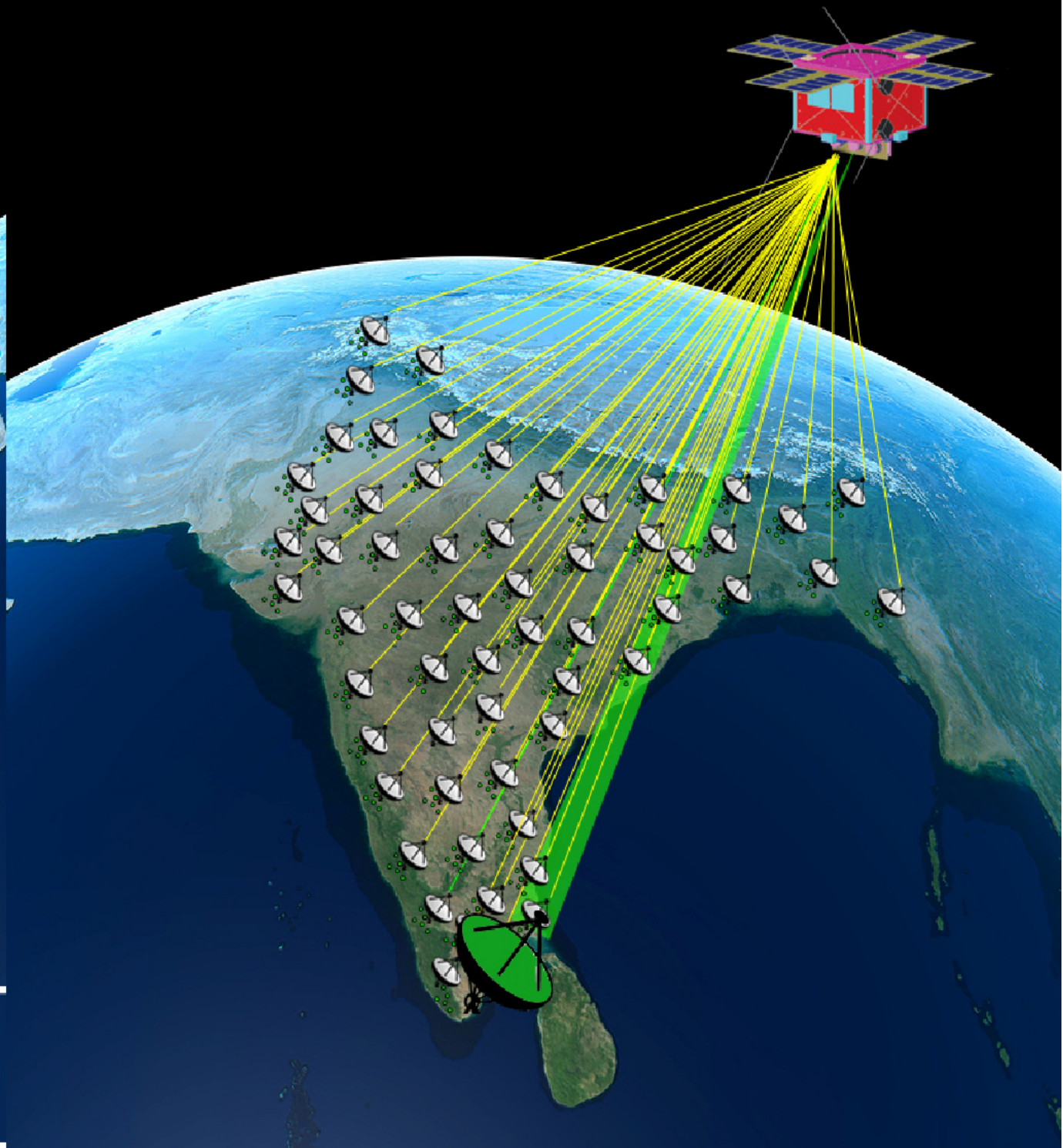




NIU-Flagship Programme - NIUSAT



NIU-Flagship Programme - NIUSAT

The NIUSAT – Noorul Islam Student Nano Satellite programme is Dream Project of our President Dr. A. P. Majeed Khan to launch a satellite on space for the welfare of our nation as a whole and enable our university with the knowhow of aerospace technologies and innovations. The Programme is being mentored and guided by the Programme Director - A. E. Muthunayagam, The father of Propulsion Technology in Indian Space programme.

Our NIUSAT - Nano satellite is being designed and developed with a Miniature Wide Field Sensor (MWiFS) for agriculture and disaster management support applications. The imagery for the NIUSAT would be used for identifying potential agricultural diseases affecting crops and provide timely assistance for Disaster Management Support Program.



A Key milestone in the progress of our NIUSAT programme was the signing of an MOU between our University and Ms. Data Pattern, was initiated. On the presence of Dr. A. P. Majeed Khan, President – NICHE who congratulated the team for the progress of the activities and stressed the need for realizing the systems at the earliest. Shri.

Krishnaswamy M., Project Director – NIUSAT presented the details of the status / progress of activities related NIUSAT project and the future growth possibilities.

On behalf of Datapattern Shri. Chidambaram gave an outlook on the details of planning & organizing of activities for NIUSAT subsystems and deliverables by them. Shri. Chidambaram also stated that Datapattern is aware of the vivid aspects of student satellites and those information will be considered during the design, realization, and testing of the systems / subsystems. Basically sufficient redundancies will be provided based on the single point failure modes. Sri Chidambaram informed that the systems will be ready in 5 months time. They have already deployed about 20 managers / engineers to coordinate and execute the NIUSAT activities, in addition to other facilities and supporting staff.

The other delegates representing the NIU for NIUSAT were the Dr. Perumalsamy – Vice Chancellor NIU, Dr. S. Manickam, Registrar NIU, and the NIUSAT team of Consultants, DPDS and Students.

NIUSAT TEAM AT INTERNATIONAL SYMPOSIUM HELD AT VTU BELGAUM

The International CANEUS Organization has partnered with NDRF and the VTU, As a part of our initiative a team of three students and two faculties were sent o be part of the “*VTU – INTERNATIONAL CANEUS SYMPOSIUM ON INCLUSIVE INNOVATION PROJECTS FOR AEROSPACE AND ENERGY SECTORS*” "Sensors, Small Satellites and Nanotechnologies (SSNT)", in Belguam, India on April 19-20, 2013, organised by “Centre for Nanotechnology Visvesvaraya Technological University, at Belgaum, Karnataka. The objective of the symposium was to enable a whole new class of mission for structural health monitoring, sensors, navigation, communication, remote sensing, micro and nano-systems, smart materials, telemedicine and their applications in commercial, aerospace and defence for both civilian and military purposes.

The Member of the Planning Commission, Shri. Narendra Jadhav inaugurated the event on Friday. Kyle Nunas, Canada's Consul and Senior Trade Commissioner to India, S.K. Shivakumar, Director, ISRO Satellite Centre, Bangalore and Millind Pimprikar, chairman, CANEUS International, were the chief guests and VTU Vice-Chancellor Prof. H. Maheshappa presided the events.

The event was enlightened by other Key note speakers namely : Dr. Peter Wegner (Space Dynamics Laboratory, USAF-ORS); Dr. Werner Balogh (UN-OOSA, Austria & Japan); Dr. Anita Goel (NanoBioSym); Dr. Russ Maguire (Global Nanocomposites and Boeing, USA); Dr. Deepak Srivastava (NASA, USA); Dr. Fu-Kuo (Boeing and Global Nano-composites); Dr. Jonathan Linton (University of Ottawa); Padmashree Dr. Kota Harinarayana (DRDO, India); Dr. B.V.A. Rao (NDRF); and many more eminent dignitaries.

Over 200 stakeholders representing the industry, academia, R&D, and from the public and private sectors, such as end-users, technology developers, policy-makers and funding agencies from Canada, U.S., Japan and Russia, among other countries, and organisations such as NASA, Lockheed Martin, NAFEMUS, HCL Aerospace, World Bank Representatives, ISRO, University of Ottawa, Boeing, United Nations, NDRF, Etc. were present at VTU.

The three students who represented the NIUSAT community were: Junnaidh S. (S8-Aero), Pranav P.S. (S8- EIE), Aby Charles (S8-EIE) and the Staff's who represented the fraternity were Dr. Ganesan R. (DPD -NIUSAT) and Mr. Pradeesh Kumar N. (PM-NIUSAT).



Aby Charles (S8-EIE), Junnaidh S. (S8-Aero), Pranav P.S. (S8- EIE), represented our student fraternity at the conference and explained our project to the delegates and participants at the poster presentation put up by us at their EXPO.



A session in Progress (left), our team with the legendary Shri. Kota Harinarayana, the Chief Designer of Tejas - The Light Combat Aircraft (middle), and our team with Dr. U. Chandra Shekar, GTRE, Bangalore.



Our team with delegates: Left - Dr. Jonathan Linton (University of Ottawa); Centre - Dr. Peter Wegner (Space Dynamics Laboratory, USAF-ORS); and Right - Dr. Milind Pimpriker (CANEUS - Canada)

VISIT OF DR. KRISHNA DEV KUMAR, RYERSON UNIVERSITY, CANADA

The NIUSAT team is proud to announce that the initiative has been recognised by different organizations and institutions across the globe as a result there are initial talks between CANEUS International Inc., Canada and Vishveswara Technological University, Belgaum, India for signing MOU, with the objective of becoming technical partners and sharing technologies related to various satellite components, formations, processes and services.

To begin with as an Initial step Dr Krishna Dev Kumar, Ryerson University, Canada, on behalf of CANEUS International Canada, visited NIU on the 22nd of June 2013 and interacted on the possibilities of satellite development under shared environment, he also made a presentation to the NIUSAT Team chaired by Dr. A. E. Muthunayagam, Programme Director - NIUSAT, Dr. Perumalsamy, Vice-Chancellor NIU, Dr. S. Manickam, Registrar-NIU and Shri. M. krishnaswamy, Project Director - NIUSAT.



THE NIUSAT TEAM WITH DR. KRISHNA DEV KUMAR, RYERSON UNIVERSITY, CANADA



DR. KRISHNA DEV KUMAR, RYERSON UNIVERSITY, CANADA,
PRESENTING ON SMALL SATELLITE - INITIATIVES.

Finally, as a result of this interaction both CANEUS International Inc. and Noorul Islam University have decided on a pact and planned to sign an MoU for the NIUSAT initiative by the month of September 2013, considering future ventures and support for the current venture.

THE VISIT TO ISAC BANGALORE FOR PDR (PROJECT DESIGN REVIEW) on 19th July 2013

The NIUSAT team got its facelift with the submission of PDR documents to ISRO at ISAC from the “SRC Committee for Micro, Nano satellites from Academic institutions” as the NIUSAT team of 22 student’s and faculty set on a mission together to present the Project Design Review Document for the various 11 systems of NIUSAT to ISRO at ISAC, bangalore led by Shri M. Krishnaswamy, Project Director-NIUSAT and Dr. Shajin Nargunam, DPD-NIUSAT for the approval and development of the NIUSAT satellite and for which the team returned victorious.

In addition to not just getting the approval and permission for the satellite development with a vivid series of recommendations and considerations the team was also offered further technological support on various dimension and systems that would be necessary for the project to grow further.



The NIUSAT Team On the day of departure to ISAC, Bangalore

The Review Panel was headed by Dr. Annadurai, Chairman; Mr. Amreshwar, Alt. Chairman; and a team of 9 members and a secretary member, additionally the chair-team also included 4 invitee members from ISAC IRS/PMO, 1 invitee member from SDA/LEOS and 2 more invitee members from CDA/ISAC



THE NIUSAT TEAM AT BANGALORE ISAC ON THE DAY OF PDR PRESENTATION 19th July 2013

The members who represented the Student and Staff Faternity for the Preliminary design Review at ISAC, Bangalore were: Shri M. Krishnaswamy, Project Director-NIUSAT , 9 Deputy Project Directors namely: Dr. Shajin Nargunam (Data Processing), Dr. Murthy SSS Chavali (Payload), Prof. S. Selvan Nambi (ST&M), Prof. Jacob Raglend I. (EPS), Dr. Sharmini Enoch (OBC & TTC), Dr. G. Glan Devadhas (AOCS),

Dr. Ganesan R. (AIT), Prof. Ramanan G (PA), Dr. Amar Pratap Singh J.(GS); Project Manager Prof. N.Pradeesh Kumar (Mission and Management); and 11 students namely: Ms. Shehna S.(Mission), Mr. Jiddhu M. Chethodil (Payload), Mr. Sharon M.(ST&M), Mr. Rohith Gireesh(), Ms. Gayathri K. G.(OBC), Mr. Mohammed Atiullah Khan(TTC), Mr. Aby Charles (AOCS), Mr. Pranav P. S.(AIT), Mr. Shabin A.(PA), Mr. Rohith I. J. (GS) and Mr. K. Siva Kumar(Data Processing).

NIUSAT TEAM AT INDIAN TECHNOLOGY CONGRESS 2013 HELD AT BANGALORE



NIUSAT AT NDRF STALL

It was a proud moment for NIUSAT when we were offered an opportunity to be part of the NDRF (National Design and Research Forum), at “The Indian Technology Congress 2013” on 24th and 25th of July at Bangalore, which was a Platform designed to bring together

Technologists, Entrepreneurs, Academicians, Investors and Policy Makers. The tech congress was a platform that provided an opportunity to technology enthusiasts as they may network, collaborate, innovate and share their thoughts and visions with leading technologists and entrepreneurs from India and abroad with an objective of making India a hub of knowledge and innovation.

Some of the key highlights of the Indian Technology Congress 2013 included Workshops on specialized areas, Product displays and Demonstrations, and parallel Technology Tracks with over 150 invited keynote & technical presentations. Over 1100 Technologists from Industries and R&D Laboratories and Academia in India and abroad, will be participating in the two-day technology event.

The Congress featured the following aspects such as: An unrivalled perspective on the focused theme by an exciting line up of inspiring Technology & Innovation Guru as keynote Speakers. Keynote round tables of international thinkers from government, R&D Institutions, Industry and Academia to debate opportunities and strategies, discuss what leading Innovators or Countries are doing and reflect on how Technology continues to create Business Opportunities in focused sectors of the congress.



THE NIUSAT TEAM

A structured B2B event aimed at bringing and renewing or developing multinational & cross industry contacts & partnerships with Executives & Decision makers of R&D establishment & Industries. Product Demo's from leading technological companies and R&D establishments provided networking opportunities for business & collaborations. Investment

Forum: leading Venture Capital firms, R&D Funding Agencies (Governmental & Non-Governmental) were invited to attend the Congress. All participants to the Investment Forum were on the networking platform.

The members who represented the NIUSAT team at the International technology congress were: Shri. M. Krishnaswamy, Project Director NIUSAT; Dr. Shivapragash R&D Director NIU; Dr. R. Ganesan, DPD-NIUSAT and students Mr. Atiullah Khan (ECE) and Mr. Sharon M. (MECH).



DELEGATES OF NIUSAT TEAM BEING HONORED AT
THE INDIAN TECHNOLOGY CONGRESS 2013

VIDEO ONFERENCE WITH CANEUS

The meeting was chaired by Dr. A.E. Muthunayagam, Programme Director NIUSAT, along with Prof. Abdul Majeed, Consultant -NIUSAT, Prof. M. Krishnswamy, Consultant – NIUSAT and a team of 13 members including DPDs and Students namely: Prof. E. J. Francis, Consultant, Prof. G. Moses, Associate Project Director (Mission), Dr. A. Shajin Nargunam, Deputy Project Director (Payload Data Processing), Dr. J. Amar Pratap Singh, Deputy Project Director(Ground Segment), Dr. G. Glan Devadas, Deputy Project Director (AOCS), Dr. R. Ganesan, Deputy Project Director (Assembly Integration and Testing), Prof. Gopala Krishnan, Assistant Professor, Nano Technology (Payload), Prof. N. Pradeesh Kumar, Project Manager, Mr. Rohit I.J. – Student (Ground Segment), Ms. Durga Manju – Student (Mission), Mr. Sharon M. – Student (Thermal Mechanical and Structure), Mr. Aslam luqman– Student (Thermal

Mechanical and Structure), Mr. Shabin – Student (Product Assurance) And External authorities representing CANEUS International Inc. (on-line) were:

1. Dr. Milind Pimprikar, CANEUS, Montreal, Canada.
2. Dr. Marco villa, California, USA.
3. Dr. Krishna Dev Kumar, Ryerson University, Canada

Three focus areas discussed were:

1. Payload Development
2. Data Processing
3. Fault Tolerant AOCS



VISIT OF NIUSAT TEAM TO SATISH DHAWAN SPACE CENTRE (SHAR) FOR THE MARS ORBITER MISSION LAUNCH

It was an Honourable moment when delegates from the NIUSAT team were permitted to be part of Indian Space Research Organisations Historic Milestone the launch of its first Mars Mission satellite THE MOM (THE MARS ORBITER MISSION) at Satish Dhawan Space Centre (SHAR), Sriharikota.

The Mars Orbiter Mission (MOM), called Mangalyaan was successfully launched into Earth orbit on 5 November 2013 by the Indian Space Research Organisation (ISRO). The mission is a "technology demonstrator" project aiming to develop the technologies required for design, planning, management and operations of an interplanetary mission. The Mars Orbiter Mission probe lifted-off from the First Launch Pad at Sriharikota, Andhra Pradesh near Chennai, using a Polar Satellite Launch Vehicle (PSLV) rocket C25 at 09:08 UTC (2:38 PM IST) on 5 November 2013. The launch window was approximately 20 days long and started on 28 October 2013. It is India's first interplanetary mission and with this, ISRO would become the fourth space agency to reach Mars, after the Soviet space program, NASA, and European Space Agency (ESA).



The MOM probe is currently in Earth orbit where it is in a month-long process of making six altitude-raising orbital manoeuvres before a planned insertion into a heliocentric Mars transfer orbit on 1 December 2013.

The NIUSAT Initiative being the first student satellite Initiative of Noorul Islam University, made a request to ISRO to permit our Team members to witness the launch of Mars Orbiter Mission as part of the learning process. To which the Director of SHAR agreed and extend their invitations to two team members to witness the launch at the M. R. KURUP, Auditorium at Sriharkota. It is the only closest point where any civilian would be allowed to witness the launch from.

The team that represented Noorul Islam University through the NIUSAT initiative were: Mr Rohith I.J., Student S7 Aeronautical and Prof. N. Pradeesh Kumar, Project manager – NIUSAT. The team was fortunate to have an interaction with Dr. K.Radhakrishnan Chairman, ISRO and other imminent dignitaries at the event and shared their view points on student satellites and future of satellite technologies and ideologies.



Mr. Rohith I. J, at SHAR (Left) and Prof.N.Pradeesh Kuamr at the M.R. KURRUP auditorium, SHAR (Right)

**MEMORANDUM OF UNDERSTANDING BETWEEN
NOORUL ISLAM CENTER FOR HIGHER EDUCATION, (NICHE), INDIA, AND
CANEUS, CANADA**

NIUSAT is a nano satellite designed and developed by the students and staff of Noorul Islam University, Under Noorul Islam Centre for Higher Education with a miniature Widefield Sensor (WiFS) for remote sensing applications. To develop the state of the art satellite technology and to promote international cooperation with applications for the benefit of societies in a cost effective manner, NICHE has signed a MOU with CANEUS on the 7th of December 2013 at the Indian Institute of Space Science and Technology, Valliamalla, Thiruvanthapuram. CANEUS is a Non-Profit organization catering primarily to the need of aerospace community through International Collaborative Development of Micro and Nano Technology for Aerospace applications.

This MOU focuses on establishing a joint collaborative program between NICHE and CANEUS towards:

1. Consultancy for NIUSAT presently under development at NIU
2. Development of payloads and components of international standards for Nano and Micro Satellites. This includes initially the following products and processes.
 - a. High resolution four band optical payload with less than 6 meters resolution for advanced applications in the areas of land, water, environment, forestry, fishery resources and for surveillance applications.
 - b. High resolution SAR payload with a resolution better than 10 meters for Disaster Management Support applications.
 - c. Payload Data Processing Software for specific Data Products and for effective dissemination of satellite image data to the end users.
 - d. Fault Tolerant Attitude and Orbit Control System (FTAOCS) for high precision attitude and orbit control of Nano satellites.
3. International programs of CANEUS
4. Establishing a Centre of Excellence in satellite technology and applications with associated academic programs.

The MOU was signed by Dr. A. E. Muthunayagam, the Programme Director- NIUSAT on behalf of Noorul Islam Center for Higher Education and Dr. Milind Pimprikar, Chairman CANEUS, for CANEUS International. Pictures taken on this occasion are given below.

The Noorul Islam University was led by Dr. A. E. Muthunayagam Programme Director- NIUSAT and Advisor- NICHE, accompanied by Prof. M. Krishnaswamy, Project Director – NIUSAT; Prof. M. K. Abdul Majeed, Consultant–NIUSAT; Prof. N. Sridhar Dhas, Consultant- NIUSAT; Prof. G. Moses, Associate Project Director–NIUSAT; Dr. Shajin Nargunam, Director Academics-NIU & DPD-NIUSAT; and Steering committee members: Dr. R. Ganesan, Dr. X. Felix Joseph, Dr. S. S. Kumar, Prof. Selvan Nambi, and Prof. N. Pradeesh Kumar.

The delegates representing the CANUES team on the occasion were: Dr. Milind Pimprikar, Chairman - CANEUS International; and Dr. Suraj Rawal, from Lockheed Martin.



The MOU being signed by Dr. A. E. Muthunayagam Programme Director- NIUSAT and Dr. Milind Pimprikar, Chariman CANEUS



The MOU being witnessed by Prof. M Krishnaswamy, Project Director- NIUSAT



The MOU being exchanged between
Dr. A. E. Muthunayagam, Programme Director- NIUSAT and Dr. Milind Pimprikar, Chairman
CANEUS

SIGNING OF MOU BETWEEN NICHE AND SAC AHMADABAD





Space Applications Centre, ISRO, deals with a wide variety of disciplines comprising design and development of payloads, societal applications, capacity building and space sciences, thereby creating a synergy of technology, science and applications. The MOU was Signed for Joint Development of Optical and Microwave Payloads and Image Data Processing.

NIUSAT at ITC 2014

NIUSAT Team is proud to be given an opportunity to be part of the Indian Technology Congress 2014(ITC 2014). ITC 2014, held at National Institute of Mental Health and Neuro Sciences (NIMHANS), Bangalore, on 21st and 22nd August 2014 is a platform for Industry Leaders, Researchers, Investors, Academicians, Policy Makers, and other Stake Holders to have an cross-sectional participation.

ITC2014 was inaugurated by Mr. H.D. Devagowda, (Former prime Minister of India), which was preceded by a panel of imminent speakers form vivid levels of the Industry. ITC 2014, is considered as a a one-stop meeting point with all your current and future clients. IT C 2014 creates numerous opportunities and encourages interaction between participants and members of the industry, Academia, R&D Establishments and Government. The event also provides an opportunity to showcase a myriad of key and emerging technologies to the vast gamut of the technology community.

The R&D Workshop at ITC 2014 was started with an objective to familiarize organizations with the R&D ecosystem in India; funding opportunities for sponsored research, establishment of

Centers of Excellence and up-gradation of infrastructure; and the financial incentives available to promote private industry participation in technological research and development programs. This R&D Workshop will promote a unique forum for discussion of interdisciplinary frameworks to improve our understanding of the synergy between innovation, technological change, growth, and national development.

At ITC 2014 the themes identified for deliberation during the two-day Workshop include: Promoting Innovation by Creating a High-Performance Collaborative Technology Development Platform, Transitioning Technologies from R&D Institutions to Industry: Opportunities and Challenges, Centers of Excellence for Technological Research-Opportunities and Methodologies, and Research Funding Opportunities in India and Incentives for Private Sector Participation.

NIUSAT - Project Directors Prof. M. Krishnaswamy and Dr. A. Shajin Nargunam were invited to be key note address Speakers for two sessions. Noorul Islam University also had our own Display Stall at the Venue displaying the NIUSAT satellite project and its prospects.

The other two members who participated in the ITC 2104, representing NIUSAT team were, Mr. .Rohith I.J. ,ME Aeronautical student and Prof, N. Pradeesh Kumar, Steering Committee Member- NIUSAT..



NIUSAT TEAM AT THE INDIAN TECHNOLOGY CONFERENCE 2014, AT NIMHANS BANGALORE

NIUSAT – TEAM WINS FIRST PLACE CASH AWARD OF US\$1500 AT BANAGALORE IISC, 2014



NIUSAT Team at IISC Bangalore



NIUSAT Team with the Organisers and sponsors From Lockheed Martin

This unique international SSTDM workshop is primarily an effort for identification and further development of small-satellite and sensor technologies with an ultimate aim of serving the disaster management needs. The two concept papers presented were:

1. Pollution Monitoring Using A Generic Nano Satellite and Wireless Sensor Networks
2. Generic Nano Satellite for Monitoring Floods, Landslide and Forest Fires

NIUSAT TEAM SECURED THE FIRST PLACE IN CONCEPT PAPER PRESENTATION WITH AN AWARD OF US\$1500 SPONSORED BY M/s. LOCKHEED MARTIN, USA.

NIUSAT Team Participation at the United Nations International Conference on Space-based Technologies for Disaster Management – “Multi-hazard Disaster Risk Assessment”

15th to 17th September 2014

INTRODUCTION

The United Nations Office for Outer Space Affairs and The Ministry of Civil Affairs of the People's Republic of China In collaboration with The Ministry of Foreign Affairs of the People's Republic of China (MoFA) China National Space Administration (CNSA) Asia-Pacific Space Cooperation Organization (APSCO) And the support of DigitalGlobe during the 15th Sep to 17th Sep, 2014, at the Grand Gongda Jianguo Hotel, Beijing, China. The UNOOSA Organized back to back with 4th UN-SPIDER Beijing Conference, 15-17 September 2014) 18-22 September 2014” Jointly organized by UN-SPIDER (UN Office for Outer Space Affairs) and National Disaster Reduction Center of China (NDRCC) With support from Beijing Normal University and Beihang University, at the International School, Beihang University, Beijing China. The Delegates Representing NIUSAT teams were: N. Pradeesh Kumar, Steering Committee Member - NIUSAT, Asst. Prof. - School of Management, and I. J. Rohith, Student S1 – ME (Aeronautical Engineering). At the venue there were totally 34 papers presented and over 85 Delegates participated from over 30 countries

The abstract of paper presented at the The United Nations International Conference on Space-based Technologies for Disaster Management – “Multi-hazard Disaster Risk Assessment” on the 15th September 2014,

Abstract of Paper - Flood monitoring using generic nano-satellite constellations

N. Pradeesh Kumar, Noorul Islam Centre for Higher Education, India

Today, we consider space technologies as an efficient tool for risk assessment and emergency management systems. The avenues of space based applications are endless with more advanced payloads being developed for monitoring the flood prone zones. It enables us to determine the flood affected areas by evaluating the collected flood-related data and different image processing techniques such as data merging, segmentation and classification to enhance the authorities to make better

decisions on managing floods. We propose to setup a constellation of Micro-Nano satellites that can provide timely information related to impending flood events for decision making to support any miscasting of any events in any area. Many new technologies like SAR, inter satellite communications, on board image processing, high bit rate data transmission to ground, constellation and formation flying techniques, etc. can be developed and demonstrated to meet the future societal requirements. A technology demonstration mission of NIUSAT Mark-1 with a medium resolution multi-spectral camera can be realized with minimum budget support from the user agency. Based on the technology demonstration, further development of Nano satellites with various advanced payloads like high resolution optical imaging and Synthetic Aperture Radar payload, etc., can be developed and launched within a reasonable budget support.



NIUSAT Team Member Presenting the Concept Paper on Flood Monitoring Using Generic Nano Satellite Constellations

INSTITUTIONAL PARTICIPATIONS

At the Conference venue the NIUSAT team members had an opportunity to interact with wide array of delegates from different organizations namely University of New South Wales/Australia, Georgia Institute of Technology/USA, University of Maryland/USA, Govt. of Assam/India, National Institute for Disaster Management (INGC)/Mozambique, , German Aerospace Center (DLR)/Germany, Asian Disaster Preparedness Centre (ADPC)/Thailand, Pacific Disaster Center/USA, Swiss Re, Ministry of Science and Technology,/Lao P.D.R, LAPAN/Indonesia, Department of Surveying and mapping-Ministry of Lands/Malawi, Remote Sensing

Authority/Sudan, National Institute of Disaster Management/India, Iranian Space Agency/Iran, Department of Disaster Management/Bangladesh, Disaster Management Center/Bhutan, Regional Centre for Mapping of Resources for Development (RCMRD)/Kenya, Disaster Management Centre/ Vietnam, Institute of Remote Sensing And Digital Earth, Chinese Academy of Sciences/China, National Satellite Meteorological Center/China, Beijing Normal University,/China Chinese Academy of Agricultural Sciences/ China, NDRCC/China, Institute of Earthquake Science China Earthquake Administration/China, Space Star Technologies Co. Ltd./China, based in different nations. (Totally there were participants of 30 different Nationalities for the conference and 18 different Nations for the training).



NIUSAT Team with Mr. Shirish Ravan Head of UN-SPIDER and Mr. Chenmin Pan, Ministry of Civil Affairs China, PR China