



L-14011/9123/2018-AMT
GOVERNMENT OF INDIA
MINISTRY OF COMMUNICATIONS
DEPARTMENT OF TELECOMMUNICATIONS
WPC WING, SANCHAR BHAWAN
NEW DELHI-110001
AMATEUR WIRELESS STATION LICENCE

Name of Licensee : H. VENKATESHKUMAR
Date of Birth : 26.06.1973
Father's/Husband's Name : C HARINATHAN
Category of License : RESTRICTED
Call Sign : VU3EAU
License No : 40809

Valid up to: -25.06.2053

Location of Station: - NO. 280/2, 7TH MAIN ROAD PIPE LINE, NEAR GOVT. HIGH SCHOOL BAHUBALI NAGAR, JALAHALLI, BANGALORE, KARNAKTA - 560013

Date of Issue...20-04-2018
Place: - New Delhi

(Signature)
20/4/18
(R C MALIK)
ASSISTANT WIRELESS ADVISER

Signature of Licensee:- *(Signature)*

(रमेश चंद्र मलिक)
(PAMESH CHANDRA MALIK)
असिस्टेंट वायरलेस अडवाइजर
संचार विभाग, भारत सरकार
Dept. of Telecom, Govt. of India
New Delhi

Signature of witness:-

Address of witness:-

License to Establish, Maintain and work an Amateur Wireless Station in India

Having satisfied by examination or otherwise that H. VENKATESHKUMAR possesses the requisite technical qualifications as prescribed under the Indian Wireless Telegraphs (Amateur Service) Rules, 1978; the Central Government, in exercise of the powers conferred under the authority of section 4 of the Indian Telegraph Act, 1885 (13 of 1885), hereby grant to him an Amateur Wireless Station License, Grade- RESTRICTED to establish maintain and work a wireless telegraph transmitting and receiving station, detailed above during the terms of period commencing on the day of the date hereof and terminating on the 25.06.2053. This License becomes invalid unless renewed further by way of a document showing the renewal of license.

The license is governed by the Indian Wireless Telegraphs (Amateur Service) Rules, 1978 and amendments thereafter.

Centre's Specifications: - Place: - BANGALORE

Call Sign: VU3EAU

Place: - New Delhi

Date: - 20-04-2018

(Signature)
20/4/18
(R C MALIK)
ASSISTANT WIRELESS ADVISER

Copy to: - Inspector General of Police, KARNAKTA for information

To,

H. VENKATESHKUMAR
NO. 280/2, 7TH MAIN ROAD PIPE LINE,
NEAR GOVT. HIGH SCHOOL BAHUBALI NAGAR,
JALAHALLI, BANGALORE,
KARNAKTA - 560013

(रमेश चंद्र मलिक)
(PAMESH CHANDRA MALIK)
असिस्टेंट वायरलेस अडवाइजर
संचार विभाग, भारत सरकार
Dept. of Telecom, Govt. of India
New Delhi



Комитет за razvoj svemirskog programa
Република Србија
21000 Нови Сад
МБ: 28104284
2comnet.info/komsat/en/



Committee for Space Programme Development
Republic of Serbia
21000 Novi Sad
MB: 28104284
2comnet.info/komsat/en/



75 Student Satellites Consortium: Mission 2022

MEMORANDUM OF UNDERSTANDING BETWEEN
INDIAN TECHNOLOGY CONGRESS ASSOCIATION (ITCA), BANGALORE
COMMITTEE FOR SPACE PROGRAMME DEVELOPMENT (CSPD), SERBIA
TSC TECHNOLOGIES P LTD (TSC), BANGALORE
7D PLUS TECHNOLOGY NETWORK COMPANY (7D+), CHENNAI/MADURAI
UNIVERSITY SPACE ENGINEERING CONSORTIUM (UNISEC) INDIA
75 STUDENTS' SATELLITES CONSORTIUM (75SSC), BANGALORE
AND
NAGARJUNA COLLEGE OF ENGINEERING AND TECHNOLOGY (NCET), BANGALORE, INDIA
FOR THE JOINT DEVELOPMENT OF UNITYsat/SlimSat (0.5U SATELLITE) and Other Satellite Projects

This Memorandum of Understanding signed on this the 05th day of July 2020 (virtually) between **Indian Technology Congress Association (ITCA), Bangalore, India** (<https://www.itca.org.in/>), **Committee for Space Programme Development ("CSPD"), Serbia** (<http://2comnet.info/komsat/en/>), **TSC Technologies P Ltd ("TSC"), Bangalore, India** (<https://tsctech.in/>), **7D Plus Technology Network Company (7D+), Chennai/Madurai, India** (<http://www.7dfunccorner.com/>), **University Space Engineering Consortium (UNISEC), Bangalore, India**, (<https://www.unisecc-india.in/>), **75 Students' Satellites Consortium (75SSC), Bangalore, India** (<http://75satellites.org/>) together referred as "**Consortium Partners/Funding Agencies/Technology Providers**" (Party 1) and **Nagarjuna College of Engineering and Technology (NCET), Bangalore, India** (<https://ncet.co.in/>) referred as "**Resource Provider/Host/Project Executing Agency**" (Party 2), together referred as "**Parties**".

Objective

ITCA, a platform for technology adherents working to stimulate multi-disciplinary capabilities in tomorrow's workforce, is actively partnering with Academic Institutions, Industry, and Research labs to conceptualize, develop and launch a distinctive programme of "**India 75 Student Satellites Mission**" through accomplished Institutions in the consortium mode. As part of Joint-Development initiative of **UNITYsat/SlimSat (0.5U Satellites)**, **TSC and CSPD, Serbia** has been come out with "state of the art, frugal innovative solutions" for the design and development of systems and sub-systems of CubeSat (0.5U to 1U and beyond) based on their sustained research in the last 3 Years!

NCET has evinced Expression of Interest (Eoi) to **ITCA/TSC/CSPD Consortium** to participate in the envisioned mission to develop Student-Centric-Satellites in co-operation with international space exploration agencies based on the "open collaboration philosophy" paradigm.

This MoU represents an understanding of the Roles and Responsibilities of both the parties to progress the proposed Student Satellite Mission and provides an umbrella understanding by both the parties to work together to meet the objectives of all aspects of the Student Satellite Mission (Students' satellite Projects) including training and assessment, mission identification, programme monitoring, structuring of institution project teams, development of subsystems, satellite assembly integration and test, deployer integration, coordination for regulatory approvals, satellite launch and deployment.

The activities that are envisaged as in Annexure 1, 2 and 3 to be progressed under this MoU would include, but are not limited to the following Projects/Fellowships etc:

**Consolidated Satellite Projects/Fellowships under Consortium ITCA, TMISAT Israel, UNISEC India,
DRL, TSC P Ltd, 7D Plus Technology Network Company & 75 Students Satellite Consortium
(Annexure 1)**

Title of the Sponsored Research Project/R&D Project/ Grant-in-Aid Fellowships (Man Power Grants)/Consultancy Projects	Amount Sanctioned (In Rupees)
National Seminar on New Space-An era of Small Satellites: Opportunities and Challenges held at Main Auditorium, NCET/NES on 25 July 2020 with the Support of Indian Technology Congress Association (ITCA) and University Space Engineering Consortium (UNISEC)-India (Grant-in-aid as Fellowships)	1,20,000
Organize Inter-College 48 Hours Online Hackathon "Accelathon '20": Social Innovation using Digital Technologies held during 16-17 August, 2020 at NCET (Grant-in-aid as Fellowships)	6,00,000
Publication Grant for "Satellites for Everyone-Nano-Micro Satellites" 2nd Indo-Israel Space Tech Leadership Programme (Grant-in-aid as Fellowships for Students' Projects)	5,00,000
Design and Development of CanSat for WCRC (Grant-in-aid as Fellowships for Students' Projects)	2,50,000
Design and Development of Sat NAV Mobile App and Tiny Satellite Ground Station	5,00,000
Travel Grant to 2 Start-ups Representatives of NCET has visited "The International Summer Space School: Future Space Technologies and Experiments in Space" held at Samara National Research University, Samara, Russia during 26 Aug-10 Sept, 2021 UNISEC India (Grant-in-aid as Fellowships)	7,00,000
Indian Technology Congress 2021-Theme: Satellites for Everyone and Space For everyone! held as an Online Event hosted by CU in Association with NCET, 24-25 September 2021 (Grant-in-aid as Fellowships)	5,00,000
Travel Grant/Collaborative Workshop on CanSat by NCET/NES Satellite Team/R&D Team & Visit to Chandigarh University for Satellite Ground Station Inauguration (Grant-in-aid as Fellowships)	1,20,000
Digital Flip Book with ISBN: "75 Students' Satellites Consortium: Mission 2022, Successful Initiatives and Institutions Innovation Council"	1,40,000
Digital Flip Book with ISBN: Evolution of The Space Company: TSC Technologies Private Limited-Beyond Horizon-Sky is not the Limit!	1,40,000
Digital Flip Book: WCRC: International Webinar and Digital Contents delivery Through YouTube Videos	7,50,000
UNITYsat/SlimSat 0.5U Satellite (Engineering Model Prototype for Qualification Testing & Flight Model) for ITCA 75 Satellites Consortium/CSPD Serbia and UNISEC India (18 Months Project)	75,00,000
Mobile App Development & Customer Satisfaction Survey	30,000
Design and Validation of OBC & SDR-Telemetry for CubeSat: P-1	3,00,000
Design and Validation of OBC & SDR-Telemetry for CubeSat: P-2	2,00,000
Design and Development of UNITYsat/SlimSat with Qualification Tests (0.35USat): M-1	5,00,000
Design and Development of UNITYsat/SlimSat with Qualification Tests (0.35USat): M-2	5,00,000
Design and Development of UNITYsat/SlimSat with Qualification Tests (0.35USat): M-3	5,00,000
Design and Development of UNITYsat/SlimSat with Qualification Tests (0.35USat): M-4	5,00,000
Development of Software and Mobile App & Survey	2,50,000

Note: * Man Power Grants will be released monthly to the individuals as per the list of Faculty and Students provided by NCET

- Both Parties agrees to support **Education/Training/Fellowships/Multidisciplinary Research & Developmental Projects and Initiatives focused on Student Satellite Development** through its members; and Research Personnel/Subject Matter Experts identified by them for the Projects.
- TSC/CSPD** will lead the activity in collaboration with the host and global technology partners as required, in India and abroad, and structure the overall Satellite Development Mission with comprehensive programme management and project management teams for successful mission completion including the launching of the satellite. ITCA will facilitate induction of technology and domain experts from Institutions, Industry and Entrepreneurs to ensure mentoring Institution teams over the duration of the mission.

3. Consortium Partners will provide all the resources (seed capital) required in terms of hardware, components, systems and sub-systems, in cash and kind (**as proposed above in Annexure 1, 2 & 3**) for the realization of **various Joint Development Projects as agreed under this MoU** and initiate this programme. Normally, 0.5U-1U CubeSat will cost Rs.2.3 to 2.6 Crores, if we buy and integrate systems and sub-systems either within the country or abroad! However, the following UNITYsat/SlimSat will be realized within the above budget including the launch cost of the satellite.
4. Design, Development, Integration, Qualification Testing and Launching 0.5U SlimSat to LEO Jointly! Joint Development of One 0.5U Functional Satellite (*similar to the one which has been launched in to space*) will be with Institution/University! However, IPR belongs to TSC, since it is based on their Patented Systems, Sub-Systems and Technologies!
5. **TSC-CSPD** Industry Sponsored Ground Control Station (GCS) will be established with Fellowships at the **NCET** campus (Host) to monitor majority of LEO Satellites including **NCETsat** to be launched! GCS Comprises of the following: *Client Computer, Client Software, Radio Receiver [Software Defined Radio-SDR], Antenna System (Antenna (VHF/UHF), Rotator, Rotator Control Software & Mobile App]*
6. **TSC-CSPD** will make **NCET's** GCS as the Member of Global Sat Network "**Satellite Networked Open Ground Station (SatNOGS)**".
7. **TSCSatNav (Mobile App)**: Amateur Radio and Weather Satellite Tracker and Passes Predictor for Android will be provided to all the Students of **NCET** to Track Satellites in their Mobiles!
8. Both the parties agree through this MoU, to meet/through online periodically to Review and Monitor the progress of the Student Satellite Development Projects and other related Initiatives.
9. Both the parties agree through this MoU, the following **Payload/Mission Objectives of 0.5U NagarjunaSat or NCETsat!** (*All the objectives or part of them will be achieved*)
 - a) *First Experimental LoRa Inter-Satellite and Ground Communication Demonstrating IOT in Space (@ Low Earth Orbit): A Faster and Productive Way to Launch a Satellite*
 - b) *Study of 3D Printed Aluminum/Plastics Structures in Space at LEO*
 - c) *Novel Compact Single Card Satellite (CSCS): Major subsystems built on 80 mm x 80 mm PCB!*
 - d) *Study of Passive ADCS in SSO/Polar Orbits and Thermal Study of Materials in Vacuum*
 - e) *Experimental Compact SlimSat (UNITYsat) Structure for LEO*
 - f) *Experimental Materials for Antennae and Deployment Methods. Smart Arrangement of Payloads Compactly*
 - g) *Audio Streaming/Broadcasting from LEO when it fly over India from LEO*
10. **TSC-CSPD** Industry Sponsored Nano/Pico Satellite Centre will be established at the **NCET** Campus (Host). Satellite PCBs/Kit will be provided to **NCET** for using it as Class Room Satellite and can be assembled by Students/Faculty Members as a regular lab practice! It can be named as Industry Sponsored Satellite Lab or NanoSatellite Centre or Pico Satellite Centre!
11. **ITCA/TSC/CSPD** will facilitate **NCET**, the signing of separate Launch Services Agreement (LSA) with New Space India Limited (NSIL) of Indian Space Research Organisation (ISRO) as Joint Agreement with all concerned as suggested by ISRO.
12. Both the parties agree to build **0.5U/Single Card Satellite; Why?** Academic Satellites are Experimental-Research Satellites and Technology Demonstrators! They should not become Space Debris by Staying in Orbit for Longer Time! If the life of Satellite is longer then it will become larger in size and very expensive! Hence, it is decided to have a designed active life of 0.5U sat will be Six months/ 600+ battery cycles whichever is earlier! However, it may orbit for 12-36+ months.
13. Both the parties agree to identify responsible persons as Points of Contact, to network and communicate with all the personnel concerned, for effective progressing of the Projects and Initiatives.

14. **ITCA/TSC/CSPD** will facilitate World CanSat/Rocketry Championships/Continental/National/Regional Workshops/ Seminars/ Competitions in India/Abroad. Both parties agree to provide access to R&D Grants (*in Cash/Kind*) Joint Sponsored Research Projects, Consultancy Projects and Travel Grants etc through their network and consortium with in India and Abroad.
15. **ITCA** will assist **NCET** in setting up vibrant Patent Facilitation Centre at **NCET** and provide Assistance to Patent Filing, Ideas, Innovation and Productization using their expertise.
16. Both the parties agree to support each other in organising national and international Hackathons, CanSat/CubeSat Workshops, conferences, symposia, seminars, workshops, training programs, competitions and other such events.
17. NCET will be the host and Institutional Member of the following Professional Societies and Network/Consortium for next **THREE Years** as a **Premium Member** entitled for all the privileges and be part of International Events such as Competitions, Conferences, Seminars, Symposia etc
 - a) **Indian Technology Congress Association (ITCA), Bangalore, India** (<https://www.itca.org.in/>),
 - b) **Committee for Space Programme Development (“CSPD”), Serbia** (<http://2comnet.info/komsat/en/>),
 - c) **TSC Technologies P Ltd (“TSC”), Bangalore, India** (<https://tsctech.in/>),
 - d) **D’vine Research Labs (DRL), Bangalore, India** (<http://dvinelab.com/>),
 - e) **7D Plus Technology Network Company (7D+), Chennai/Madurai, India** (<http://www.7dfuncorner.com/>),
 - f) **University Space Engineering Consortium (UNISEC), Bangalore, India,** (<https://www.unisec-india.in/>),
 - g) **75 Students’ Satellites Consortium (75SSC), Bangalore, India** (<http://75satellites.org/>)
18. **Validity of the MoU**
The validity of this MoU will be for **Three Years** from the date of signing this MoU. This MoU may be terminated without any cause by a prior notice of not less than three months by either party.
21. **Force Majeure**
The failure or omission to carry out or to observe any of the terms/provision or conditions of this MOU during the continuance of an event of Force Majeure, or its effects, shall not give rise to any claim by either party against each other or be deemed to be a breach of this MOU, if the same is caused by or arises out of Force Majeure.
22. **Confidentiality**
Each parties agrees and undertakes that during the term of this MOU and, thereafter, it will keep confidential and will not use for its own purpose nor without the prior written consent of the other party disclose to any third party any information of a confidential nature.
23. **Applicable Law and Jurisdiction /Dispute Resolution**
All disputes or differences whatsoever arising among the parties under and/or in connection with and/or in respect of this MoU shall be referred to Arbitration after exhaust the following:
 - a) The Parties shall, mutually and in good faith, attempt to resolve any dispute, controversy or claim (“Dispute”) between them within 30 (thirty) days after the initiation of such informal proceedings.
 - b) If, the Parties fail to amicably resolve the Dispute within the 30 (thirty) days period referred above, such Dispute shall be finally determined and settled by arbitration under the Arbitration and Conciliation Act, 1996 along with the Rules there under and any amendments thereto.

c) **Arbitration**

In case of any disputes are not settled amicably then all such disputes shall be finally settled by a sole arbitrator appointed by the Parties, in accordance with the (Indian) Arbitration and Conciliation Act, 1996. The award of the sole arbitrator shall be a reasoned award and shall be final and binding on the Parties. The venue of arbitration proceedings shall be Bangalore, India. The arbitration proceedings shall be conducted and the award shall be stated in English language.

In witness whereof both parties above mentioned have set their hands to this MOU on the day and year herein above mentioned.

Signed by


Dr. K. Gopalakrishnan
 Secretary General, ITCA/UNISEC India,
 Convener, 75 Students' Satellite Consortium
 Founder, 7D+ Technology Network Company
 Mobile: +91 98451 73730



Signed by

Dr. S. G. Gopala Krishna
 Director,
 Nagarjuna College of Engineering and Technology,
 Bangalore, India
 Mobile: +91 8722882333

Witnessed by



(Mr. Hariraj Rajkumar)
 Founder Member, TSC/DRL/TMISAT
 Mobile: +91 9677707968

Witnessed by

Dr. Nagesh K N
 Professor and Head, Dept of ECE, NCET
 Mobile: +91 9901653776

Signed by


Mr. Dušan Radosavljević
 Head, CSPD, Serbia
 Mobile: +381 658616339



Office Seal

Signed by


Mr. Nikhil Riyaz
 Authorized Signatory, TSC, Bangalore
 Mobile: +91 9741896297




Office Seal

Witnessed by



(Mr. Lazar Jeftic)
 CSPD, Serbia
 Mobile: +381 641411805

Witnessed by


(Mr. Denzel George)
 UNISEC India/TSC,
 Mobile: +91 9482019653



Ref: UNITYsat/TSC SatNAV/Fellowship/003A

24 June 2018

To

The Principal (Attention to Prof & HoD, Dept of Civil & CSE)
Nagarjuna College of Engineering and Technology (NCET)
Mudugurki, Venkatagiri Kote Post,
Devanhalli, Bangalore- 562 164, Karnataka

Sanction of Fellowships-Design and Development of TSC SatNAV: Amateur Radio and Weather Satellite Tracker and Passes Predictor for Android-6 Months (2018-19)-Rs. 11,40,000/-

Dear Professor,

SUB: Sanction of Matching Grant-Joint Development- Design and Development of TSC SatNAV: Amateur Radio and Weather Satellite Tracker and Passes Predictor for Android-6 Months (2018-19)- Rs.31,40,000/-Reg.

REF: Your Project Proposal Requesting Fellowships in Response to Announcement of Opportunity-Our Interactions/On-line Meetings/MoU Signed among Consortium Partners on 05 April 2016

Under the powers vested with Programme Office for the UNITYsat Programme as per the TSC-ITCA-CSPD Consortium which has signed MoU on 05 April 2016 and subsequent Announcement of Opportunity issued, I am directed to convey the sanction of the following project for the year 2018-19:

Title of the Project: "**Design and Development of TSC SatNAV: Amateur Radio and Weather Satellite Tracker and Passes Predictor for Android**"

Amount: **Rs. 11.40 Lakhs as Sanctioned as Grants-in-Aid towards Fellowships for Project Man Power Cost**

Total estimated funds for the project is **Rs.31.4 Lakhs**. Remaining Rs.20 Lakhs will be borne by the Industry Partners in Kind and host will take care of 50% (Rs.10 Lakhs worth components) as its own contribution from Institution. However, the same is subject to revision based on performance and review. The break-up of the grant under various heads is given below:

Sl. No.	Head	Grant-in-Aid from TSC Technologies P Ltd
1.	*Man Power Grant as Fellowships: Faculty Mentors 2 persons @ Rs.15,000/ each per month x 6 Months MTech (Civil) Project Students: 8 @ Rs.10,000/- each per month x 6 months BE (CSE) Final Year Students: 10 @ Rs.8,000/- each per month x 6 months	Rs. 1.80 Lakhs Rs. 4.80 Lakhs Rs. 4.80 Lakhs
	Total Amount Towards Fellowships (Man Power Grants)	Rs.11.40 Lakhs
	Support Services/Equipement/System etc provided by Industry Partners	In Kind from ITCA/TSC
2.	@Equipment (Ground Station) (Sponsored by ITCA-TSC Consortium)	Rs. 2.0 Lakhs
3.	^Components for Systems and Sub-system (Sponsored by ITCA Consortium)	Rs. 2.0 Lakhs
4.	Android Development of Software-Mobile App (Sponsored by TSC)	Rs. 6.0 Lakhs
5.	Consumables (Including Maintenance) (NCET's Responsibility)	Rs. 2.5 Lakhs
6.	Testing and Integration Services (NCET's Responsibility)	Rs. 2.5 Lakhs
7.	Contingency (NCET's Responsibility)	Rs. 1.0 Lakhs
8.	Travel (NCET's Responsibility)	Rs. 2.0 Lakhs
9.	Overheads (10%) (NCET's Responsibility)	Rs. 2.0 Lakhs
	Total	Rs.20 Lakhs

Note:

* Man Power Grants will be released monthly to the individuals as per the list of Faculty and Students provided by NCET
@ Client Software, Radio Receiver

^On-Board Computer (Primary Computation Unit, External Memory & Secondary Housekeeping Controller)

Terms and Conditions:

1. Funds for second installment will be released on satisfactory progress and submission of three month progress report by PI to the Programme Office and based on recommendation with due approval of competent authority.
2. Statement of accounts and utilization certificate duly certified by the executive financial authority of the Institution is also required to be submitted along with the annual report. Excess expenditure, beyond the sanctioned amount, shall be responsibility of grantee institution.
3. The duration of the project is SIX MONTHS with review after three months! The date of receipt of the grant would be reckoned as the commencement date of the project which has to be intimated to the Programme Office without any ambiguity.
4. A separate account for the grant would be maintained by NCET and any interest earned thereon, if any, would accrue to UNITYsat Programme.
5. Unspent balance, on completion of the project should be sent by the grantee institution through a RTGS/Cheque/Draft in the name of TSC Technologies P Ltd, Bangalore for doing the needful.
6. A list of inventory of equipment purchased out of the Programme grant shall be intimated year-wise, along with its cost and source of procurement to the Programme Office.
7. On completion of the project, the grantee institution would forward the consolidated list with request, if any, for the retention of any equipment for another project or in-house R&D, with due recommendations of their executive authority and the concerned panel.
8. In case of any joint publications of Technical Research Papers related to this project as a part/outcome of the research works shall have the mentioning/acknowledgement of consortium which has granted the matching grant for the project appropriately. However, if any Patent(s) filed out of the Joint project, due credits will be given to all the Inventors, but Patent(s) filed by ITCA/TSC only as applicable as Applicant!
9. A Closure Report alongwith copies of technical report may be submitted within sixty days of completion of project alongwith Statement-2 (Statement of Expenditure) and Statement -3 (Utilization Certificate) as per the Annexure III of Grants-in-aids rules duly audited from the Audit Authority of Institution signed in ink in duplicate.
10. TSC Technologies P Ltd, Bangalore will make disbursement of money/equivalent in kind as applicable as sanctioned unless otherwise as specified.

With Warm Regards,

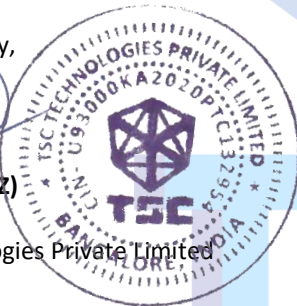
Yours Sincerely,



(NIKHIL RIYAZ)

Director

TSC Technologies Private Limited



Copy to

- a) Programme Director, UNITYsat Programme Office, Bangalore
- b) President, Indian Technology Congress Association
- c) Head, Committee for Space Programme Development, Serbia
- d) Convener, 75 Students' Satellites Consortium: Mission 2022
- e) Professor and HoD, Civil & CSE, NCET, Bangalore



Ref: UNITYsat/PocketQube/OBC/007

05 July 2018

The Principal (Attention to Prof & HoD, Dept of ECE & CSE)
Nagarjuna College of Engineering and Technology (NCET)
Mudugurki, Venkatagiri Kote Post,
Devanhalli, Bangalore- 562 164, Karnataka

Sanction of Fellowships-Design of OBC for PocketQube Satellite and Programming and Validation-6 Months (2018-19)-Project Cost: Rs. 6,24,000/- (Rupees Six Lakhs and Twenty Four Thousands Only)

Dear Professor,

SUB: Sanction of Fellowships as Grant-in-Aid-Joint Development-Design of OBC for PocketQube Satellite and Programming and Validation- 6 Months (2018-19)- Rs.6,24,000/-Reg.

REF: Your Project Proposal Requesting Fellowships in Response to Announcement of Opportunity-Our Interactions/On-line Meetings/MoU Signed among Consortium Partners on 05 April 2016

Under the powers vested with Programme Office for the UNITYsat Programme as per the TSC-ITCA-CSPD Consortium which has signed MoU on 05 April 2016 and subsequent Announcement of Opportunity issued, I am directed to convey the sanction of the following project for the year 2018-19:

Title of the Project: "**Design of OBC for PocketQube Satellite and Programming and Validation**"

Amount: **Rs. 3.5 Lakhs as Grant-in-Aid as Fellowships to Faculty Members and Students**

Duration: **06 Months**

AY/FY: **2018-19**

Sl. No.	Head	Grant-in-Aid from TSC Technologies P Ltd
1.	*Man Power Grant as Fellowships: Faculty Mentors 2 persons @ Rs.12,000/ each per month x 6 Months BE (ECE) Project Students: 5 @ Rs.8,000/- each per month x 6 months BE (CSE) Final Year Students: 5 @ Rs.8,000/- each per month x 6 months	Rs. 1.44 Lakhs Rs. 2.40 Lakhs Rs. 2.40 Lakhs
	Total Amount Towards Fellowships (Man Power Grants)	Rs.6.24 Lakhs

Note:

* Man Power Grants will be released monthly to the individuals as per the list of Faculty and Students provided by NCET

Terms and Conditions of Sanction of Grant-in-Aid

1. Funds for second installment will be released on satisfactory progress and submission of three month progress report by PI to the Programme Office and based on recommendation with due approval of competent authority.
2. Statement of accounts and utilization certificate duly certified by the executive financial authority of the Institution is also required to be submitted along with the annual report. Excess expenditure, beyond the sanctioned amount, shall be responsibility of grantee institution.
3. The duration of the project is SIX MONTHS with review after three months! The date of receipt of the grant would be reckoned as the commencement date of the project which has to be intimated to the Programme Office without any ambiguity.
4. A separate account for the grant would be maintained by NCET and any interest earned thereon, if any, would accrue to UNITYsat Programme.
5. Unspent balance, on completion of the project should be sent by the grantee institution through a RTGS/Cheque/Draft in the name of TSC Technologies P Ltd, Bangalore for doing the needful.

6. A list of inventory of equipment purchased out of the Programme grant shall be intimated year-wise, along with its cost and source of procurement to the Programme Office.
7. On completion of the project, the grantee institution would forward the consolidated list with request, if any, for the retention of any equipment for another project or in-house R&D, with due recommendations of their executive authority and the concerned panel.
8. In case of any joint publications of Technical Research Papers related to this project as a part/outcome of the research works shall have the mentioning/acknowledgement of consortium which has granted the matching grant for the project appropriately. However, if any Patent(s) filed out of the Joint project, due credits will be given to all the Inventors, but Patent(s) filed by ITCA/TSC only as applicable as Applicant!
9. A Closure Report alongwith copies of technical report may be submitted within sixty days of completion of project alongwith Statement-2 (Statement of Expenditure) and Statement -3 (Utilization Certificate) as per the Annexure III of Grants-in-aids rules duly audited from the Audit Authority of Institution signed in ink in duplicate.
10. TSC Technologies P Ltd, Bangalore will make disbursement of money/equivalent in kind as applicable as sanctioned unless otherwise as specified.

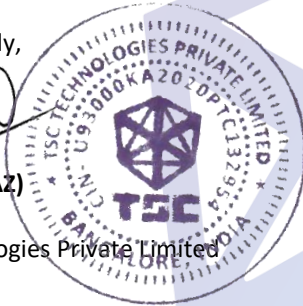
With Warm Regards,

Yours Sincerely,


(NIKHIL RIYAZ)

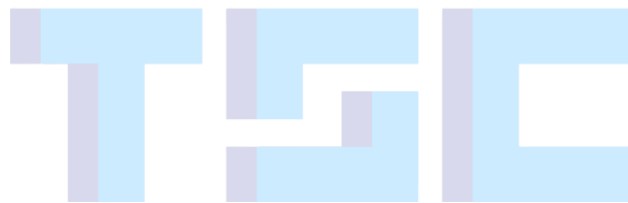
Director

TSC Technologies Private Limited



Copy to

- a) Programme Director, UNITYsat Programme Office, Bangalore
- b) President, Indian Technology Congress Association
- c) Head, Committee for Space Programme Development, Serbia
- d) Convener, 75 Students' Satellites Consortium: Mission 2022
- e) Professor and HoD, Dept of ECE & CSE, NCET, Bangalore



24-9-2016

From
Dr.N.Kapilan
Professor and Head
Department of Mechanical Engineering
NCET, Bangalore - 562 164

To
The Principal
NCET, Bangalore

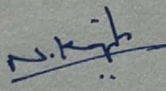
Sir,

Sub: Financial Support to attend ASHRAE Conference and Seminar - Reg

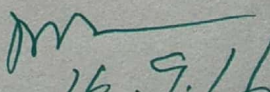
With reference to the above, i am willing to participate in the ASHRAE conference and seminar which is scheduled at Thailand from 30th September to 2nd October 2016. The participation of this programme will help us getting interaction with other country academicians and also help to identify our autonomous students' international visit for International Internship, Industrial Visit, Conference/Seminar/Workshop etc. The total expenses including the registration fee, boarding lodging and visa expenses is approximately Rs.55,000. Hence I kindly request you to financially support and do the needful.

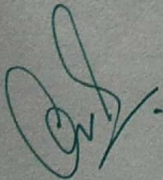
Thanking You

Yours Sincerely


(Dr.N.Kapilan)

Forwarded to CEO
With the request that
Rs 20,000/- may please be
reimbursed.


26.9.16



Region XIII & RAL Joint CRC 2016

2016 Region XIII & RAL Chapter Regional conference

Centara grand at Central Plaza Ladprao • 1695 Phaholyothin Road, chatuchak, Bangkok 10900, Thailand, • September 30th to October 2nd 2016

ATTENDEE PACKAGE REGISTRATION

Package 1

Technical Seminar +
Seminar Lunch

US \$170

- Registration - 1
- Full Day Seminar - 1
- Morning and Afternoon Coffee Break - 1
- International Buffet Lunch - 1

Package 2

(Singles Package)
For One Member

US \$ 985

- Package 1 -1
- Single Room + Breakfast (3 nights) - 1
- Welcome Reception/ Dinner -1
- Caucus and Business Sessions-1
- Presidential Lunch-1
- Banquet Dinner-1
- Awards Lunch-1

Package 3

(Couples Package)
For One Member + 1 Guest

US\$ 1280

- Package 1-1
- Double Room + Breakfast (3nights) - 2
- Welcome Reception/ Dinner -2
- Caucus and Business Sessions-1
- Presidential Lunch-2
- Banquet Dinner-2
- Awards Lunch-2

Package 4

(Small Family Package)
For One Member + 2 Guests

US \$ 1450

- Package 1-1
- Double Room + Extra Bed + Breakfast (3nights) - 3
- Welcome Reception/ Dinner -3
- Caucus and Business Sessions-1
- Presidential Lunch-3
- Banquet Dinner-3
- Awards Lunch-3

Package 5

(Twin Member Package)
For Two Members

US \$ 1710

- Package 1 - 2
- Twin Room+ Breakfast (3nights) -2
- Welcome Reception/ Dinner -2
- Caucus and Business Sessions-2
- Presidential Lunch-2
- Banquet Dinner-2
- Awards Lunch-2

Package 2A

(One member
without Hotel)

US \$665

- Package 1 - 1
- Welcome Reception/ Dinner - 1
- Caucus and Business Sessions - 1
- Presidential Lunch - 1
- Banquet Dinner - 1
- Awards Lunch - 1

Yea Package

US \$ 485

- Welcome Reception/ Dinner - 1
- Caucus and Business Sessions - 1
- Presidential Lunch - 1
- Banquet Dinner - 1
- Awards Lunch - 1

A La Carte Registration

Extra Rooms during Conference (3 nights) US \$110/night
Extra Rooms pre and post Conference US \$120/night
Extra Tickets for Presidents Lunch/Awards lunch US\$45/ticket
Extra Tickets for Welcome Party/Banquet Dinner US \$65/ticket

Registration Deadline

For the other packages please extend the
Early Bird Registration to July 31
After June 1 rates increase by 5%
After July 1 rates increase by 10%

INNOVATION FOR SUSTAINABLE FUTURE

Morning Session

Keynote Speaker : Highly Recognized Specialist from Ministry of Energy (To be named after confirmation) (9:00-9:30)



Topic Thailand Current Energy Policy and Public trust

Description Biography Thai energy policy for Science and Technology development together with Secure Energy supply. Fair energy pricing. Energy conservation and Sustainable management of natural resources & Environment.

Topic The Future of our Industry and ASHRAE's Role (9:30-10:00)

Description The future has begun witnessing dramatic changes to technology, driving the industry increasingly towards Integrated Building Design. Global concerns of sustainability and the need for better designing and evaluating Building performance are more important than ever before, and ASHRAE is responding with its standards, publications, guides and BEQ program, with a global perspective and outreach.

Speaker Timothy G. Wentz. (Tim Wentz)
Associate Professor of Construction Management, President Elect 2015-2016



Biography Professor Wentz graduated from the University of Nebraska with a Bachelor of Science degree in Mechanical Engineering and a Masters degree in Business Administration. He is a registered professional engineer in Nebraska, Colorado, South Dakota, and Wyoming. He holds both Master Heating Contractor and Master Plumbing Contractor licenses, is a LEED Accredited Professional (AP&BD&C) and ASHRAE's new certification as a High performance Building Design Professional (HBDP).

Topic International Standards for The Indoor Environment - Where Are We and Do They Apply Worldwide? (10:30-11:15)

Description On the international level ISO (International Organization for Standardization, CEN (European Committee for Standardization and ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers are writing standards related to the indoor environment. Several of these standards have been developed mainly by experts from Europe, North America and Japan, thus guaranteeing a worldwide basis. Are there, however, special considerations related to other parts of the world (lifestyle, outdoor climate, and economy), which are not dealt with in these standards and which will require revision?

Speaker Bjarne W. Olesen, Ph.D.
Professor Technical University of Denmark



Biography Master's degree in civil engineering, 1972. Ph.D., Laboratory of heating and Air Conditioning, Technical University of Denmark, 1975. The Society of Heating, Air-Conditioning and Sanitary Engineers of Japan. Vice president of ASHRAE and Honorary member of AICARR (Italian Society for HVAC) Is active in several ASHRAE-CEN-ISO-DIN standard committees regarding indoor environment and energy performance of buildings and HVAC systems. Has published more than 350 papers including more than 60 in peer reviewed journals.

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Topic	The Coming Age of a Smart Grid and Smart Buildings (11:15-12:00)
Description	The smart grid is coming and in that future era buildings will be interacting even more with the electric utilities. The communication will be in both directions, with the utility working to balance the grid supply and demand through methods such as signaling requests for demand response measures, real-time price adjustments, etc.
Speaker	Thomas M. Lawrence, Ph.D. <i>Senior Public Service Associate with the University of Georgia</i>
Biography	Dr. Lawrence is a Senior Public Service Associate with the University of Georgia, and has 30 years of professional experience in engineering and environmentally related fields. Before going back for his Ph.D. in Mechanical Engineering at Purdue, he spent approximately 20 of those years in industry and consulting. He is the chair of ASHRAE Technical Committee 2.8, "Building Environmental Impact and Sustainability", and is a member of the committee which wrote the ASHRAE standard on high-performance green buildings (Standard 189.1).



Afternoon Session

Topic	Intelligent Buildings – Technology is changing what is possible in the built environment (13:00-13:30)
Description	There is a lot of buzz around Intelligent, or Smart, Buildings, but what is an Intelligent Building? This presentation will examine the answers to this question and how you can put your building on its path to a "higher education". The intelligent building platform will result in a more efficient, secure and productive asset that has the capacity to continuously improve over its lifetime.
Speaker	Jim Vallort (James K. Vallort) <i>Standard Project Committee 211P, Standard for Commercial Building Energy Audits, and Technical Committee (TC) 7.9, Building Commissioning.</i>
Biography	Jim is a Senior Vice president with ESD headquartered in Chicago, IL, a consulting engineering firm. Jim also serves as an ASHRAE Society Vice President for the 2015-2016 Board of Directors. He currently serves as a member of Standard Project Committee 211P, Standard for Commercial Building Energy Audits, and Technical Committee (TC) 7.9, Building Commissioning. Jim previously served on the Board as a director-at-large in 2005-08 and as Region VI director and Regional Chair in 2001-04.





Topic	Integrating Renewable Engineering Systems into Buildings (13:30-14:00)
Description	Overview of Renewable energy, methods for incorporating RE technology that used successfully in the USA to offset building electrical bill and thermal energy load into building design and operation, discuss issue related to connecting RE systems into the existing grids and offer tips for implementing successful projects.
Speaker	Sheila J. Hayter P.E., LEED, AP <i>Project Assessment & Development Section Manager of the U.S. Department of Energy's (DOE) National Renewable Energy Laboratory (NREL)</i>
Biography	As an ASHRAE Vice president, BoD, Ex.committee, Fellow grade, DL, DOE Solar and High performance Building evaluation and judging, Green building ad Hoc steering committee. Building energy labeling chair and committee. Many Ashrae TCs' chair



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Topic	Natural Comfort (14:30-15:15)		
Description	Learn how natural comfort can be a viable alternative to achieving thermal comfort in hot and humid region, especially when demand for air conditioning has been over escalating with soaring electricity cost.		
Speaker	Mr. Kecha Thirakomen <i>CEO of EEC Group Bangkok, Thailand</i>		
Biography	As an ASHRAE DL & Fellow, HVAC engineer with more than 40 years of experience, Mr. Kecha Thirakomen is an expert in large-scale and high-rise building designs. Not only is he a pioneer in the use of DOAS and humidity control for indoor thermal comfort, but he is also known for his work in solar air conditioning and natural comfort in tropical climates.		
Topic	Integrated Building Design (15:15-16:00)		
Description	To provide a truly successfully integrated building design (IBD) continues to challenge the industry and the built world. This program looks at these challenges, identifies barriers to success, and explores solutions to promote and achieve holistic IBD. Content covers Project delivery techniques, Design team structure, Design crosslink hidden agenda and etc.		
Speaker	Charles E. Guilledge III, P.E., HBDP, LEED <i>Senior Engineer of AC Corporation</i>		
Biography	As an ASHRAE Vice president, BoD, Ex.committee, Fellow grade, DL, TC 7.1 Integrated Building design. He did multiple presentation of this Integrated Building design through ASHRAE DL, Setterlite Webcast, Learning institute (ALI)		

Date: 22 -03 -17

From
Dr. Manjunatha K.
Professor, Department of Chemistry,
NCET, Bangalore.

To
The Principal
Nagarjuna College of Engineering & Technology
Bangalore.

Respected Sir,

Sub: Expenditure details of ICASE 2017 at Bangkok, Thailand – Reg.

I attended International Conference on “Advances in Science and Engineering” and presented a paper. The conference held at Regent’s International College, Bangkok, Thailand from 20th Jan to 23rd Jan 2017. The following are the expenses during my visit.

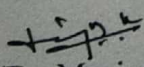
Sl. No.	Particular	Expenditure (Rs)
1	Conference Registration (Inclusive of Travel Expenses)	34,900.00
Total(Rs) (Rs Thirty four Thousand Nine Hundred only)		34,900.00

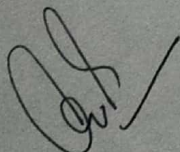
I am here by submitting the necessary documents herewith.

Kindly look into the matter and do the needful

Thanking You

Faithfully Yours


(Dr. Manjunatha K)



Forwarded to Dir/CEO
50% of the registration
charges may please be paid
mm
22.3.17